

Single Audit Reporting Package
Michigan Technological University
Year Ended June 30, 2018

Michigan Technological University

Single Audit Reporting Package

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Independent Auditors' Report on Internal Control Over Financial Reporting
and on Compliance and Other Matters Based on an Audit of Financial Statements
Performed in Accordance with *Government Auditing Standards*

Board of Trustees
Michigan Technological University
Houghton, Michigan

We have audited, in accordance with auditing standards generally accepted in the United States of America and the standards applicable to financial audits contained in *Government Auditing Standards* issued by the Comptroller General of the United States, the financial statements of Michigan Technological University (University), as of and for the year ended June 30, 2018, and the related notes to the financial statements, which collectively comprise the University's basic financial statements, and have issued our report thereon dated February 27, 2019.

Internal Control over Financial Reporting

In planning and performing our audit of the financial statements, we considered the University's internal control over financial reporting (internal control) to determine the audit procedures that are appropriate in the circumstances for the purpose of expressing our opinion on the financial statements, but not for the purpose of expressing an opinion on the effectiveness of the University's internal control. Accordingly, we do not express an opinion on the effectiveness of the University's internal control.

A deficiency in internal control exists when the design or operation of a control does not allow management or employees, in the normal course of performing their assigned functions, to prevent, or detect and correct, misstatements, on a timely basis. *A material weakness* is a deficiency, or combination of deficiencies, in internal control, such that there is a reasonable possibility that a material misstatement of the University's financial statements will not be prevented, or detected and corrected, on a timely basis. *A significant deficiency* is a deficiency, or a combination of deficiencies, in internal control that is less severe than a material weakness, yet important enough to merit attention by those charged with governance.

Our consideration of internal control was for the limited purpose described in the first paragraph of this section and was not designed to identify all deficiencies in internal control that might be material weaknesses or, significant deficiencies. Given these limitations, during our audit we did not identify any deficiencies in internal control that we consider to be material weaknesses. However, material weaknesses may exist that have not been identified.

Compliance and Other Matters

As part of obtaining reasonable assurance about whether the University's financial statements are free from material misstatement, we performed tests of its compliance with certain provisions of laws, regulations, contracts, and grant agreements, noncompliance with which could have a direct and material effect on the determination of financial statement amounts. However, providing an opinion on compliance with those provisions was not an objective of our audit, and accordingly, we do not express such an opinion. The results of our tests disclosed no instances of noncompliance or other matters that are required to be reported under *Government Auditing Standards*.

Purpose of this Report

The purpose of this report is solely to describe the scope of our testing of internal control and compliance and the results of that testing, and not to provide an opinion on the effectiveness of the University's internal control or on compliance. This report is an integral part of an audit performed in accordance with *Government Auditing Standards* in considering the University's internal control and compliance. Accordingly, this communication is not suitable for any other purpose.

Andrews Hooper Pavlik PLC

Bay City, Michigan
February 27, 2019

Independent Auditors' Report on Compliance for Each Major Program;
Report on Internal Control Over Compliance; and Report on Schedule of Expenditures of
Federal Awards Required by the Uniform Guidance

Board of Trustees
Michigan Technological University
Houghton, Michigan

Report on Compliance for Each Major Federal Program

We have audited Michigan Technological University's (University) compliance with the types of compliance requirements described in the U.S. Office of Management and Budget (OMB) *Compliance Supplement* that could have a direct and material effect on each of the University's major federal programs for the year ended June 30, 2018. The University's major federal programs are identified in the summary of auditor's results section of the accompanying schedule of findings and questioned costs.

Management's Responsibility

Management is responsible for compliance with federal statutes, regulations, and the terms and conditions of its federal awards applicable to its federal programs.

Auditors' Responsibility

Our responsibility is to express an opinion on compliance for each of the University's major federal programs based on our audit of the types of compliance requirements referred to above. We conducted our audit of compliance in accordance with auditing standards generally accepted in the United States of America; the standards applicable to financial audits contained in *Government Auditing Standards*, issued by the Comptroller General of the United States; and the audit requirements of Title 2 U.S. *Code of Federal Regulations* Part 200, *Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards* (Uniform Guidance). Those standards and the Uniform Guidance require that we plan and perform the audit to obtain reasonable assurance about whether noncompliance with the types of compliance requirements referred to above that could have a direct and material effect on a major federal program occurred. An audit includes examining, on a test basis, evidence about the University's compliance with those requirements and performing such other procedures as we considered necessary in the circumstances.

We believe that our audit provides a reasonable basis for our opinion on compliance for each major federal program. However, our audit does not provide a legal determination of the University's compliance.

Opinion on Each Major Federal Program

In our opinion, Michigan Technological University complied, in all material respects, with the types of compliance requirements referred to above that could have a direct and material effect on each of its major federal programs for the year ended June 30, 2018.

Report on Internal Control over Compliance

Management of Michigan Technological University is responsible for establishing and maintaining effective internal control over compliance with the types of compliance requirements referred to above. In planning and performing our audit of compliance, we considered the University's internal control over compliance with the types of requirements that could have a direct and material effect on each major federal program to determine the auditing procedures that are appropriate in the circumstances for the purpose of expressing an opinion on compliance for each major federal program and to test and report on internal control over compliance in accordance with the Uniform Guidance, but not for the purpose of expressing an opinion on the effectiveness of internal control over compliance. Accordingly, we do not express an opinion on the effectiveness of the University's internal control over compliance.

A deficiency in internal control over compliance exists when the design or operation of a control over compliance does not allow management or employees, in the normal course of performing their assigned functions, to prevent, or detect and correct, noncompliance with a type of compliance requirement of a federal program on a timely basis. *A material weakness in internal control over compliance* is a deficiency, or combination of deficiencies, in internal control over compliance, such that there is a reasonable possibility that material noncompliance with a type of compliance requirement of a federal program will not be prevented, or detected and corrected, on a timely basis. *A significant deficiency in internal control over compliance* is a deficiency, or a combination of deficiencies, in internal control over compliance with a type of compliance requirement of a federal program that is less severe than a material weakness in internal control over compliance, yet important enough to merit attention by those charged with governance.

Our consideration of internal control over compliance was for the limited purpose described in the first paragraph of this section and was not designed to identify all deficiencies in internal control over compliance that might be material weaknesses or significant deficiencies. We did not identify any deficiencies in internal control over compliance that we consider to be material weaknesses. However, material weaknesses may exist that have not been identified.

The purpose of this report on internal control over compliance is solely to describe the scope of our testing of internal control over compliance and the results of that testing based on the requirements of the Uniform Guidance. Accordingly, this report is not suitable for any other purpose.

Report on Schedule of Expenditures of Federal Awards Required by the Uniform Guidance

We have audited the financial statements of Michigan Technological University, as of and for the year ended June 30, 2018, and the related notes to the financial statements, which collectively comprise the University's basic financial statements. We issued our report thereon dated February 27, 2019, which contained an unmodified opinion on those financial statements. Our audit was conducted for the purpose of forming an opinion on the basic financial statements as a whole. The accompanying schedule of expenditures of federal awards is presented for purposes of additional analysis as required by the Uniform Guidance and is not a required part of the basic financial statements. Such information is the responsibility of management and was derived from and relates directly to the underlying accounting and other records used to prepare the basic financial statements. The information has been subjected to the auditing procedures applied in the audit of the financial statements and certain additional procedures, including comparing and reconciling such information directly to the underlying accounting and other records used to prepare the financial statements or to the financial statements themselves, and other additional procedures in accordance with auditing standards generally accepted in the United States of America. In our opinion, the schedule of expenditures of federal awards is fairly stated in all material respects in relation to the basic financial statements as a whole.

Andrews Hooper Pavlik PLC

Bay City, Michigan
February 27, 2019

Michigan Technological University

Schedule of Expenditures of Federal Awards

Year Ended June 30, 2018

Federal Grantor/Pass-Through Grantor/Program or Cluster Title	Federal CFDA Numbe	Passed Through	Award Number	Passed Through to Subrecipients	Federal Expenditures
Student Financial Aid Cluster					
U.S. Department of Education					
Federal Supplemental Education Opportunity Grant	84.007	Direct	P007A172046	\$ -	\$ 231,154
Federal Work Study Program	84.033	Direct	P033A172046	-	294,578
Federal Perkins Loans	84.038	Direct	n/a	-	13,152,005
Federal Pell Grant Program	84.063	Direct	P063P170234	-	6,127,127
Federal Direct Student Loans	84.268	Direct	P268K180234	-	29,766,688
Total Student Financial Aid Cluster				-	49,571,552
Research and Development Cluster					
U.S. Department of Agriculture					
No CFDA Number:					
MICHI-Vernal Pool Mapping HNF	10.RD	Michigan State University	PO NUMBER 370714	-	3,000
USAGR-ESC-FFC-NWOS Support	10.RD	Direct	16-JV-11242305-093	-	172
USAGR-ESC-FFC-Lakes State Hardwoods	10.RD	Direct	17-JV-11111133-018	-	13,375
USAGR-ESC-FFC-Forest Road Surfacing	10.RD	Direct	69-5D21-17-116	-	21,376
USAGR-FFC-ESC-Pine Samples	10.RD	Direct	12-CR-11242313-106	-	3,920
USAGR-ESC-FFC-Tropical Ecosystems	10.RD	Direct	13-JV-11242306-044	-	(713)
USAGR-ESC-FFC-Carbon Rsch Managemnt	10.RD	Direct	13-CR-11242306-065	-	24,132
USAGR-FlamMap Model Complement	10.RD	Direct	13-JV-11221634-135	-	14,384
USAGR-ESC-FFC-Wood Decomposition	10.RD	Direct	13-JV-11330140-120	-	3,301
USAGR-ESC-FFC-Post-Fire Salvage Log	10.RD	Direct	14-JV-11221634-138	-	2,065
USAGR-ESC-FFC-Study of Harvest Gaps	10.RD	Direct	14-JV-11242307-084	-	3,359
USAGR-ESC-FFC-Black Ash Wetlands	10.RD	Direct	14-JV-11242307-153	-	70,533
USAGR-FFC-Nondestructive Testing	10.RD	Direct	15-JV-11111133-076	-	11,823
USAGR-Smoke Management	10.RD	Direct	15-CR-11261987-035	-	104,353
USAGR-GLRC-FFC-Aquatic Organism	10.RD	Direct	16-CS-11090700-005	-	441
USAGR-ESC-FFC-Web Development	10.RD	Direct	16-CR-11242306-100	-	58,624
USAGR-ESC-FFC-Radiocarbon Collabora	10.RD	Direct	16-CR-11242306-094	-	91,503
USAGR-ESC-FFC-Wood Stake Decomp	10.RD	Direct	16-JV-11242303-062	-	10,303
USAGR-ESC-FFC-Tropical Ecosystems	10.RD	Direct	17-JV-11242306-017	-	97,767
USAGR-ESC-FFC-Bonding Mixed Species	10.RD	Direct	17-JV-11111133-013	-	10,083
USAGR-ESC-FFC-Coasatal Wetland	10.RD	Direct	17-PA-11091000-023	-	42,569
USAGR-ESC-FFC-KISMA Agreement	10.RD	Direct	17-PA-11090700-026	-	12,959
USAGR-ESC-FFC-Design Thinking/Lean	10.RD	Direct	17-JV-11242306-044	-	66,724
USAGR-ESC-FFC-Peat Accumulation	10.RD	Direct	17-PA-11091000-038	-	10,460
USAGR-ESC-FFC-Evaluating Changes	10.RD	Direct	17-JV-11221633-163	-	56,215
USAGR-ESC-FFC-Black Ash Wetland	10.RD	Direct	17-JV-11242307-133	-	58,951
USAGR-Estimating Upland Watersheds	10.RD	Direct	18-JV-11221634-020	-	10,141
USAGR-ESC-FFC-Eval Biochar Impacts	10.RD	Direct	16-JV-11221633-057	-	60,521
				-	862,341
Agricultural Research Basic and Applied Research:					
USAGR-SFI-LCA Cropping Systems	10.001	Direct	58-2074-7-001	-	23,000
Cooperative Forestry Research:					
USAGR-MS-FFC-FY16 Admin	10.202	Direct	2016-32100-06098	-	6,972
USAGR-MS-ESC-FFC-ADV ACCT-FY17-Admi	10.202	Direct	NI17MSCFRXXXG079	-	217,995
USAGR-MS-ESC-FFC-ADV ACCT-FY18 Admi	10.202	Direct	ADVANCE ACCOUNT	-	134,062
				-	359,029
Institution Capacity Building Grants:					
ALCOR-3-D-Near Infrared Bruise Detc	10.216	Alcorn State University	2014-38821-22394 SUB#330092	-	11,798
Biotechnology Risk Assessment Research:					
USAGR-LSTI-FFC-STERILE APETALA(SAP)	10.219	Direct	2016-33522-25626	-	168,430
Agriculture and Food Research Initiative:					
USAGR-ESC-FFC-Novel Timber Systems	10.310	Direct	2017-67013-26261	-	20,960
MICHI-ESC-FFC-Xeric Jack PineForest	10.310	Michigan State University	2015-67019-23007 RC104605MTU	-	27,134
UNIVE-GLRC-Sustainable Water-Desert	10.310	University of Texas at El Paso	SUBAWARD NO. 226300313E	-	165,229
				-	213,323
Biomass Research and Development					
Initiative Competitive:					
USAGR-SFI-HRJ Fuel	10.312	Direct	59-3620-3-002	-	(2,336)

See Notes to Schedule of Expenditures of Federal Awards.

Michigan Technological University

Schedule of Expenditures of Federal Awards

Year Ended June 30, 2018

Federal Grantor/Pass-Through Grantor/Program or Cluster Title	Federal CFDA Numbe	Passed Through	Award Number	Passed Through to Subrecipients	Federal Expenditures
Research and Development Cluster (continued)					
U.S. Department of Agriculture (continued)					
Forestry Research:					
USAGR-ESC-FFC-Carbon Stocks African	10.652	Direct	16-JV-11330140-052	\$ -	\$ 21,140
USAGR-ESC-FFC-Wood Decomp:FACE Wood	10.652	Direct	16-DG-11330140-086	-	128,251
				-	149,391
Wood Utilization Assistance:					
USAGR-ESC-FFC-Beetle-Killed Tree	10.674	Direct	16-DG-11420004-166	-	93,169
UNIVE-ESC-FFC-Thermal Modification	10.674	University of Minnesota-Duluth	D004865401/15-DG-11420004-082	-	16,768
				-	109,937
Partnership Agreements					
USAGR-ESC-FFC-Web Dev USDA Climate	10.699	Direct	17-CR-11242306-105	-	44,926
USAGR-ESC-FFC-Hardwood Cross Lamina	10.699	Direct	17-JV-11111133-034	-	26,734
				-	71,660
				-	1,966,573
Total U.S. Department of Agriculture					
U.S. Department of Commerce					
No CFDA Number:					
LIMNO-GLOS DMAC 2017	11.RD	LimnoTech Inc	LIMNOTECH AGREEMENT	-	26,239
Ocean Exploration:					
FRIEN-GLRC-Pushing the Boundaries	11.011	Friends of Thunder Bay National Marine Sanctuary	NA16OAR0110194	-	7,196
Integrated Ocean Observing System:					
GREAT-Simulating Spill Scenarios	11.012	Great Lakes Observing System	GRANT # IOOS/HECWFS-01	-	56,823
GLOS-GLRC-Implementation Network	11.012	Great Lakes Observing System	PROJECT NUMBER: IOOS/NBN-01	-	70,983
				-	127,806
Coastal Zone Management Estuarine					
Research Reserves:					
MIDNR-GLRC-FNR-Resilient Coastal	11.419	Michigan Department of Natural Resources	PRJCT#17-RESILIENCYSTRATEGY003	-	81,969
MIDEQ-GLRC-FNR-Resilient Coastal	11.419	Michigan Dept of Environmental Quality	18-RESILIENCY STRATEGY-003	-	17,683
MIDEQ-GLRC-Great Lakes Beach Hazard	11.419	Michigan Dept of Environmental Quality	18-CHAZ-001	-	23,851
REGEN-GLRC-Mapping ZDCIs & Coastal	11.419	Regents of the University of Michigan	3004599139	-	68,256
				-	191,759
National Oceanic and Atmospheric Administration					
(NOAA) Cooperative Institutes:					
UNIVE-GLOS Observing Network	11.432	University of Michigan	3002475304 / NA120AR4320071	-	735
REGEN-Remote Sensing Products	11.432	Regents of the University of Michigan	SUBCONTRACT NO. 3004701270	-	125,000
UNIVE-Laurentian-Great Lakes	11.432	Regents of the University of Michigan	SUBK00008752	-	29,263
WOODS-Dev Biocompatible Whale Tag	11.432	Woods Hole Oceanographic Institution	SUBAWARD#A101333	-	13,757
				-	168,755
Gulf Coast Ecosystem Restoration Science, Observation, Monitoring, and Technology:					
BOARD-GLRC-Approaches to Restoratio	11.451	Board of Supervisors of Louisiana State University	SUBAWARD NO. PO-0000038194	-	6,801
Center for Sponsored Coastal Ocean Research_Coastal Ocean Program:					
OHIOS-GLRC-ECOHA2017	11.478	Ohio State University	PO#RF01495490/PROJECT#60061695	-	33,496
Measurement and Engineering Research and Standards:					
NATIO-Wildland Fire Incident Operat	11.609	Direct	70NANB17H174	200,881	435,398
Total U.S. Department of Commerce					
U.S. Department of Defense					
No CFDA Number:					
LEIDO-Corona	12.RD	Leidos, Inc.	SUBCONTRACT #P010190459	-	269,158
MDAIN-LFORS Program	12.RD	MDA Information Systems LLC	SUB #SST-0008, SCLIN 0001	-	19,220
AKELA-ICC-FNR-Multistatic Phase II	12.RD	AKELA Inc	SUBCONTRACT AK-2017-0412	-	55,585
BOEIN-ASISC-FNR-Density Filter Mat.	12.RD	Boeing Company	BOEING PO1431363	-	12,113
BOEIN-ASISC-FNR-Solid State Neutral	12.RD	Boeing Defense & Space Group	PC 1505958	-	43,947
DYNET-Algorithm Development Support	12.RD	Dynamics Inc	PO# CH014466	-	15,166
LEIDO-Roadrunner	12.RD	Leidos, Inc.	SUBCONTRACT #P010197000	-	473,411
NATIO-Tracked Vehicle Suspension	12.RD	National Advanced Mobility Consortium	NAMC AGREEMENT 69-201515 #T02	4,628	327,805
LEIDO-Oak II	12.RD	Leidos Inc	P010130462 / PRIME 12-C-8928	-	131,975
AKELA-Detection and Location	12.RD	AKELA Inc	SUBCONTRACT #AK-2016-0810	-	50,033

See Notes to Schedule of Expenditures of Federal Awards.

Michigan Technological University

Schedule of Expenditures of Federal Awards

Year Ended June 30, 2018

Federal Grantor/Pass-Through Grantor/Program or Cluster Title	Federal CFDA Numbe	Passed Through	Award Number	Passed Through to Subrecipients	Federal Expenditures
Research and Development Cluster (continued)					
U.S. Department of Defense (continued)					
No CFDA Number (continued):					
ETEGE-AF171-090 Improving Trust	12.RD	Etegent Technologies Ltd	SUB #ETE130/#FA8651-17-P-0118	\$ -	\$ 9,565
LEIDO- Opera TO2	12.RD	Leidos Inc	P010151900-2 FA8650-13-D-1622	-	122,566
LEIDO-PRIDE	12.RD	Leidos Inc	P010189654 / FA8650-16-C-1732	-	15,256
LEIDO-ACME 4	12.RD	Leidos, Inc.	SUBCONTRACT NO P010192299	-	695,444
MITLI-ICC-Self-Interference Modelin	12.RD	Lincoln Labs MIT	PO#7000379788	-	46,267
MZAAS-Atmospheric Imaging	12.RD	MZA Associates Corporation	MZA - MTU SUBCONTRACT #17358	-	27,908
SRICO-CQP-Optical Isolators Phase 2	12.RD	SRICO Inc	SUB NO. 17089MTU	-	59,569
THERM-Mitigate Sensor Saturationthe	12.RD	Thermoanalytics Inc	PRIME #FA8650-14-C-5014	-	17,615
TECHN-FNR-Sr Design-Design Challenge	12.RD	Technology Service Corporation	STUDENT PROJECT-TSC-1070-40066	-	25,018
UTAHLS-LIFT-Communication Emitters	12.RD	Utah State University Research Foundation	PURCHASE ORDER CPOO39720	-	41,123
UTAHLS-Fab Equip-Oculus-ASR Nanosate	12.RD	Utah State University Research Foundation	SUBCONTRACT #CPO043108	-	12,031
UNIVE-AIM-FNR-HVDC Study	12.RD	University of Dayton Research Institute	SUBCONTRACT NO. RSC17071	-	98,826
WYLEA-CQP-Nonreciprocal MagnetoOpti	12.RD	Wyle Aerospace Group	APSC02053/A10552-0005-S004/FA8	-	61,010
AKELA-SWARM-UAS Explosive Hazards	12.RD	AKELA Inc	SUBCONTRACT #AK-2016-0802	-	104,437
CACIT-Forward Thinking Ground RADAR	12.RD	CACI Technologies Inc	PO# P000028947	-	46,973
CACIT-Smart Detection via Machines	12.RD	CACI Technologies Inc	PO #P000029459	-	66,290
MTEQI-Airborne GPR Data Study	12.RD	MTEQ, Inc.	PURCHASE ORDER NO. 28407	-	285,731
ALION-PARA Board Build 2	12.RD	Alion Science and Technology Corporation	PO#PUR1146518	-	11,728
SANDI-AIM-FNR-Pulsed Load Microgrid	12.RD	Sandia National Laboratories	PO#1746491	-	104,072
TWINL-AIM-Magnetic Sensor Suite	12.RD	Twinleaf LLC	MTU AGREEMENT #1702021	-	49,254
STRUC-High-Precision Interferometer	12.RD	Structured Materials Industries Inc	#42086-050918-02/#N0003018C021	-	4,766
DCSCO-M1 Abrams Active Protection	12.RD	DCS Corporation	PO#1707036	-	28,736
METTL-EFP Test	12.RD	Mettle Ops	MTU CONFIRMING ORDER	-	24,495
METTL-Dynamic Mass Catch	12.RD	Mettle Ops	METTLE OPS PO# 17	-	95,185
UNIVE-GLRC-Experimental Buoy	12.RD	University Of California at San Diego	UNIV CAL SD PO# 91612406	-	3,385
UNIVE-GLRC-Deploy & Recov Buoy-2018	12.RD	University Of California at San Diego	UNIV CA SAN DIEGO PO#91741250	-	3,989
WOOLP-GLRC-Stamp Sand Threat	12.RD	Woolpert	SUB AGREEMENT NO. MTU-16-S-021	-	6,469
SPAWA-MIMO Tower of Babel	12.RD	Direct	N66001-16-C-4011	-	199,943
OFFIC-APS-FNR-Inverter Design	12.RD	Direct	EMAIL DATED 8/30/17	-	19,074
OFFIC-GLRC-SWITCHES	12.RD	Direct	N66001-18-C-4014	-	223,137
USAIR-Multi Domain Intelligence II	12.RD	Direct	FA8750-15-C-0051	-	34,206
USAIR-ESCAPE	12.RD	Direct	FA8750-16-C-0072	-	204,932
USAIR-Electronic Support Critical	12.RD	Direct	FA8650-17-C-1058	-	879,243
NAVAL-AIM-Hydrodynamic Control XBa	12.RD	Direct	N39430-16-C-1883	44,219	84,505
TACOM-Assured III Blast Mitigation	12.RD	Direct	W56HZV-14-C-0286 MOD P0009WD10	-	(897)
TACOM-Assured III CIED Payload	12.RD	Direct	W56HZV-14-C-0286 P00013 WD 011	-	78,040
TACOM-ASSURED III-APU Task 1	12.RD	Direct	W56HZV-14-C-0286 P00015 WD 013	-	116,408
TACOM-ASSURED III-RCV Enabler	12.RD	Direct	W56HZV-14-C-0286 P00016 WD 012	-	108,085
TACOM-ASSURED III-RCM Conversion	12.RD	Direct	W56HZV-14-C-0286 P00017 WD 015	-	18,571
TACOM-ASSURED III-BCS Vehicle Integr	12.RD	Direct	W56HZV-14-C-0286 MOD P00018 WD	-	94,193
TACOM-ASSURED III-JIDA-Dismounted	12.RD	Direct	W56HZV-14-C-0286 WD008 REV002	-	(678)
TACOM-ASSURED III HFBC Blast Buck	12.RD	Direct	W56HZV-14-C-0286 WD17	-	309,842
TACOM-ASSURED III-Heavy Fuel Engine	12.RD	Direct	W56HZV-14-C-0286 MOD P00022 WD	-	175,491
TACOM-Assured III S19 Advanced	12.RD	Direct	W56HZV-14-C-0286 P00025 WD018	-	334,593
TACOM-ASSURED III-Ice Cleat MARCOR	12.RD	Direct	W56HZV-14-C-0286 WD 019	-	728,252
TACOM-Assured III-AMS SIM Developme	12.RD	Direct	W56HZV-14-C-0286 P00026 WD 020	-	57,830
TACOM-ASSURED III-BMTD	12.RD	Direct	W56HZV-14-C-0286 WD 021	-	299,341
TACOM-ASSURED III-Frozen Soil Test	12.RD	Direct	W56HZV-14-C-0286 MOD P00030 WD	-	96,007
TACOM-ASSURED III-Countermine Sys	12.RD	Direct	W56HZV-14-C-0286 P00032 WD 023	-	39,050
TACOM-ASSURED III-NG NRMM	12.RD	Direct	W56HZV-14-C-0286 P00034 WD 025	-	463,381
TACOM-ASSURED III-HFBC ESU HullLoad	12.RD	Direct	W56HZV-14-C-0286 WD026 REV 001	-	274,620
TACOM-ASSURED III-MRAP PI	12.RD	Direct	W56HZV-14-C-0286 P00039 WD 28	-	408,628
TACOM-ASSURED III-APU Treatments	12.RD	Direct	W56HZV-14-C-0286 WD 30	-	72,128
TACOM-ASSURED III - GVSP APS	12.RD	Direct	W56HZV-14-C-0286 WD 027	-	18,439
TACOM-ASSURED III-Snow & Ice Terrai	12.RD	Direct	W56HZV-14-C-0286 WD 029	-	13,715
TACOM-ASSURED III-THAAD APU	12.RD	Direct	W56HZV-14-C-0286 P00046 WD 024	-	34,150
				48,847	8,850,350
Basic and Applied Scientific Research:					
OFFIC-Metamaterial Devices	12.300	Direct	N00014-15-1-2684	-	105,300
OFFIC-AIM-Undersea Persistence	12.300	Direct	N00014-15-1-2599	-	147,371
OFFIC-AIM-Autonomous Microgrids	12.300	Direct	N00014-16-1-2422	-	192,946
OFFIC-LSTI-FNR-Smart Adhesive	12.300	Direct	N00014-16-1-2463	-	144,656
OFFIC-MTRI-Standoff IED Detection	12.300	Direct	N00014-16-1-2623	-	28,693
OFFIC-IMP-Microalloyed Aluminum	12.300	Direct	N00014-16-1-2878	-	150,567
OFFIC-AIM-Increasing Ship Power Sys	12.300	Direct	N00014-16-1-3044	-	104,381
OFFIC-AIM-Integrating Object Detect	12.300	Direct	N00014-17-1-2273	-	82,037
				-	955,951

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Michigan Technological University

Schedule of Expenditures of Federal Awards

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Federal Grantor/Pass-Through Grantor/Program or Cluster Title	Federal CFDA Numbe	Passed Through	Award Number	Passed Through to Subrecipients	Federal Expenditures
Research and Development Cluster (continued)					
U.S. Department of Defense (continued)					
Basic Scientific Research:					
OFFIC-ICC-Target Detection	12.431	Direct	W911NF-16-1-0017	\$ -	\$ 64,169
USARM-AIM-Agent-Based Control AEN	12.431	Direct	W911NF-17-2-0130	-	150,647
UNIVE-CQP-Supersymmetry	12.431	University of Central Florida	SUBAWARD #65016323-01	-	55,241
				<u>-</u>	<u>270,057</u>
Basic, Applied, and Advanced Research in Science and Engineering:					
NATIO-Effects of Wind SAR Coherence	12.630	Direct	HM04761510009	-	23,158
AMERI-IMP-Melt 5a Development	12.630	merican Lightweight Materials Manufacturing Innovation Ir	#N00014-14-2-0002 SUB 0002A-6	-	806
AMERI-IMP-Melt R2-5: Development	12.630	merican Lightweight Materials Manufacturing Innovation Ir	SUBAWARD 0002E-6	-	48,647
				<u>-</u>	<u>72,611</u>
Air Force Defense Research Sciences Program:					
OFFIC-EPSSI-Lab Cloud Chamber	12.800	Direct	FA9453-16-1-0083	-	155,610
USAIR-MuSTI-Magneto-Electrostatic	12.800	Direct	FA9550-17-1-0212	89,512	276,457
USAIR-ICC-FNR-Induced Anisoplanatis	12.800	Direct	FA9550-17-1-0201	-	88,552
UNIVE-ICC-Wave Optics Turbulence	12.800	University of Dayton Research Institute	RSC12034	-	61,641
				<u>89,512</u>	<u>582,260</u>
Mathematical Sciences Grants Program:					
OFFIC-FNR-Designs, Codes & Finite	12.901	Direct	H98230-16-1-0011	-	10,099
CyberSecurity Core Curriculum:					
OFFIC-ICC-Cybersecurity Curriculum	12.905	Direct	H98230-17-1-0227	-	114,339
NATIO-ICC-MTU CyberSecurity	12.905	Direct	H98230-17-1-0414	-	144,037
				<u>-</u>	<u>258,376</u>
Research and Technology Development:					
USINT-GLRC-Bilge Water Microbiomes	12.910	Direct	D16AP00146	-	165,332
FLORI-ICC-DARPA XAI	12.910	Florida Institute for Human and Machine Cognition	FA8650-17-2-7711-1	-	93,935
REGEN-MTTI-Next Generation NATO	12.910	Regents of the University of Michigan	W56HZV1420001 / 3004877392	-	13,286
REGEN-ICC-Robust Terrain ID/Path PL	12.910	Regents of the University of Michigan	SUB 3004831295/W56HZV1420001	-	3,500
VIRGI-IMP-FNR-Efficient Electronics	12.910	Virginia Polytechnic Institute and State University	SUBAWARD NO. 450393-19959	-	114,591
				<u>-</u>	<u>390,644</u>
Total U.S. Department of Defense				<u>138,359</u>	<u>11,390,348</u>
U.S. Department of Housing and Urban Development					
No CFDA Number:					
ALGER-MTTI-Log Movement Super Regio	14.RD	Alger County	AGREEMENT DATED 2/27/18	-	26,939
Healthy Homes Technical Studies Grants:					
USHOU-Cleanup Lead Based Paint Soil	14.906	Direct	MILTS0007-17 AMEND NO. 1	3,931	17,017
Total U.S. Department of Housing and Urban Development				<u>3,931</u>	<u>43,956</u>
U.S. Department of Interior					
No CFDA Number:					
USPAR-Ghyllbank Twnship Archeol-NPS	15.RD	Direct	H.2215-LETTER	-	2
Keweenaw National Historical Park (NHP)					
Enhancement Grants:					
KEWEE-Quincy Milling History	15.407	Keweenaw NHP Advisory Commission	C2015-015	-	41
Coastal Program:					
USFIS-Abiotic & Biotic Constraints	15.630	Direct	F12AC01384	-	20,850
Research Grants (Generic):					
USFIS-Carbon & Nutrient Flux	15.650	Direct	F16AC00321	-	29,148
Migratory Bird Monitoring, Assessment and Conservation:					
USFIS-ESC-FFC-Woodcock Habitat	15.655	Direct	F15AP00518	45,639	51,505
Great Lakes Restoration:					
USFIS-ESC-FFC-Huron Bay Hunt Club	15.662	Direct	F16AC01002	-	13,613

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Federal Grantor/Pass-Through Grantor/Program or Cluster Title	Federal CFDA Numbe	Passed Through	Award Number	Passed Through to Subrecipients	Federal Expenditures
Research and Development Cluster (continued)					
U.S. Department of Interior (continued)					
Cooperative Ecosystem Studies Units:					
USFIS-Coastal Wetlands	15.678	Direct	F16AC01102	\$ -	\$ 89,637
U.S. Geological Survey Research and Data Collection:					
USGEO-GLRC-Robot -Assisted Computer	15.808	Direct	G18AC00108	-	103,187
National Cooperative Geologic Mapping:					
USGEO-GLRC-Keweenaw Fault Geometry	15.810	Direct	G17AC00115	-	18,920
USGEO-Invasive Phragmites CoastalGL	15.810	Direct	G17AC00351	-	260,868
				-	279,788
National Land Remote Sensing-Education Outreach and Research:					
AMERI-StateView Program YR4	15.815	AmericaView Inc	AWARD #AV13-MI01	-	5,185
National Resource Stewardship:					
USPAR-ESC-FFC-Wolf-Moose monitoring	15.944	Direct	TASK AGREEMENT #P16AC00004	-	45,706
Cooperative Research and Training Programs - Resources of the National Park System:					
USPAR-ESC-FFC-Beech Reintroduction	15.945	Direct	P16AC01398	-	88,428
USPAR-Pullman National Monument	15.945	Direct	TASK AGRM # P17AC00005	-	22,918
USPAR-ESC-FFC-Park Ecosystem-Climat	15.945	Direct	P17AC01063	-	11,942
				-	123,288
Total U.S. Department of Interior				45,639	761,950
U.S. Department of Transportation					
No CFDA Number:					
INTEG-DOT Short Course	20.RD	Integrated Global Dimensions LLC	MTU AGREEMENT; #DTRT5717C10031	-	8,678
UNIVE-Radar Congestion Task 1	20.RD	University of Michigan	PSA #3004183586	-	176,154
IOWAS-IMP-Jointed Concrete Pavement	20.RD	Iowa State University	SUBCONTRACT #436-17-09B	-	8,618
MITRA-MTTI-Bridge Decks	20.RD	Michigan Dept of Transportation	2010-0295 AUTH Z7 JOB#132975	7,677	97,278
MITRA-MTTI-Unmanned Aerial Vehicles	20.RD	Michigan Dept of Transportation	2016-0067 AUTHORIZATION 1	50,000	219,019
MITRA-MTTI-Wet Freeze Best Practice	20.RD	Michigan Dept of Transportation	2016-0067 Z3	-	128,855
MITRA-MTTI-Deploy 3D BRIDGE App	20.RD	Michigan Dept of Transportation	2018-0283	-	38,779
RESEA-GLRC-FNR-TOPR 4 Post Hazard	20.RD	Research Foundation of CUNY	SUBAWARD NUMBER 49204-0	-	37,500
USTRA-MTTI-Driver Behavior	20.RD	Direct	DTRF5316C00022	-	130,161
				57,677	845,042
Highway Research and Development Program:					
UNIVE-MTTI-Sustainable Hwy Practice	20.200	University of Washington	SUB# UWSC9460 BPO#20732	-	14,071
Metropolitan Transportation Planning and State and Non-Metropolitan Planning and Research:					
MITRA-MTTI-Freeze Thaw Model	20.505	Michigan Dept of Transportation	2016-0067 Z5 JOB #132228	-	46,262
MITRA-Bridge Scour Technology	20.505	Michigan Dept of Transportation	2016-0067 AUTH Z4 JOB 132226	-	38,493
				-	84,755
Public Transportation Research, Technical Assistance, and Training:					
UNIVE-MTTI-Transit Response Plan	20.514	University of Chicago	SUB AWARD #FP062899-B	-	41,903
University Transportation Centers Program:					
UNIVE-MTTI-NURail Tier 1	20.701	University of Illinois at Urbana-Champaign	072614-14811	-	82,929
Transportation Planning, Research and Education:					
UNIVE-MTTI-Risk Infrastructure	20.931	University of Arkansas	SA1509067	-	22,977
Total U.S. Department of Transportation				57,677	1,091,677
National Aeronautics and Space Administration					
No CFDA Number:					
HONEY-AIM-FFP-Planetary Landing	43.RD	Honeybee Robotics Ltd	HONEY.SUBCONTRACT #456.SBC.001	-	2,344
JETPR-MuSTI-FRN-ISRU on Mars	43.RD	Jet Propulsion Laboratory	SUBCONTRACT NO. 1576028	-	6,670
USNAS-Harmful Algal Blooms	43.RD	Direct	NNC15VA51P	-	51,244
				-	60,258

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Federal Grantor/Pass-Through Grantor/Program or Cluster Title	Federal CFDA Numbe	Passed Through	Award Number	Passed Through to Subrecipients	Federal Expenditures
Research and Development Cluster (continued)					
National Aeronautics and Space Administration (continued)					
Science:					
USNAS-Linking Remote Sensing	43.001	Direct	NNX12AQ89G	\$ -	\$ 106,473
USNAS - EPSSI - FNR - Climatology	43.001	Direct	NNX13AF50G	-	136,357
USNAS-EPSSI-FNR-EIC Observations	43.001	Direct	NNX15AC61G	-	52,702
USNAS-EPSSI-FNR-Basaltic Volcanic	43.001	Direct	NNX15AR97G	31,241	108,862
USNAS-Boreal-Taiga Ecosystems	43.001	Direct	NNX15AT83A	-	192,971
USNAS-FNR-NASAs Plum Brook Station	43.001	Direct	NNX16AL54G	-	13,285
USNAS-SMAP-Data Soil Fuel Moisture	43.001	Direct	NNX16AN09G	41,479	150,313
USNAS-EPSSI-FNR-Snowfall in GPM Era	43.001	Direct	80NSSC17K0058	-	74,156
USNAS-GLRC-FNR-Laurentian Basin	43.001	Direct	80NSSC17K0287	-	8,280
USNAS-Great Lake Basin	43.001	Direct	80NSSC17K0262	111,584	225,676
USNAS-FNR-Next Generation AVIRIS-NG	43.001	Direct	80NSSC17K0543	-	54,204
USNAS-FNR-New Carbon Monitoring	43.001	Direct	80NSSC17K0712	-	209,761
USNAS-EPSSI-FNR-Snowfall Measuremnt	43.001	Direct	80NSSC18K0331	-	1,997
UNIVE-EPSSI-FNR-Satellite Data	43.001	University of Maryland College Park	SUBAWARD NO. 19311-Z6929001	-	27,938
UNIVE-Repeated Wildfire Burning	43.001	University of Maryland	Z6981001 / NNX15AT79A /PO31017	-	92,130
UNIVE-EPSSI-FNR-NASA OMI SO2 Produc	43.001	University of Maryland	53894-Z6044201	-	11,227
				<u>184,304</u>	<u>1,466,332</u>
Education:					
USNAS-FNR-LIFT-Stratus: A CubeSat	43.008	Direct	NNX16AI74A	-	80,365
Space Technology:					
USNAS-APS-Ultra-Strong Composites	43.012	Direct	NNX17AJ32G	1,373,660	1,803,232
USNAS-MUSTI-FNR-Excavation Gypsum	43.012	Direct	80NSSC18K0252	-	65,476
				<u>1,373,660</u>	<u>1,868,708</u>
Total National Aeronautics and Space Administration				<u>1,557,964</u>	<u>3,475,663</u>
National Science Foundation					
No CFDA Number:					
MICRO-CSERI-Blood Typing Determinat	47.RD	Microdevice Engineering Inc	MICHIGAN TECH AGREEMENT1601065	-	130,370
MICRO-Microfabrication Fac Services	47.RD	Microdevice Engineering Inc	MTU CO#1703052;PO#7	-	13,714
				<u>-</u>	<u>144,084</u>
Engineering Grants:					
NSF-CAREER: Operation Distr Grids	47.041	Direct	1751460	-	16,325
NSF-SFI-Dust Mitigation	47.041	Direct	CMMI-1234126	-	12,007
NSF-BRC Preferential Hydration	47.041	Direct	CBET-1159425	-	1,477
NSF-SFI-Aerodynamic Vibration	47.041	Direct	CMMI-1300970	-	9,794
NSF-EPSSI-FNR-Damage Assessment	47.041	Direct	CMMI-1300720	(5,290)	61,369
NSF-MTTI-SusChEM/Collaborative Rese	47.041	Direct	CMMI-1300286	-	106,372
NSF-APSRC-Combustion Engines	47.041	Direct	CBET-1258720	-	17,670
NSF-MuSTI-High Voltage Temperature	47.041	Direct	IIP-1362040	-	62,797
NSF-MuSTI-CAREER-Mobility Amputees	47.041	Direct	CBET-1350154	40,158	73,337
NSF-BRC-PFI: AIR-TT Blood Typing	47.041	Direct	IIP-1414331	-	1,578
NSF-MuSTI-FNR-Millimeter Scale Flow	47.041	Direct	CBET-1402702	-	2,235
NSF-APS-GOALI: Easily Verifiable	47.041	Direct	CMMI-1435257	-	1,686
NSF-CWS-Molecular Level Investigati	47.041	Direct	CBET-1435926	-	53,795
NSF-LSTI-CAREER:Improved Virus Remo	47.041	Direct	1451959	-	94,012
NSF-ILI-I-Corps Site Program	47.041	Direct	1450364	-	32,454
NSF-IMP-3D Integrated Circuit Pkg	47.041	Direct	1462204	-	43,795
NSF-LSTI-GOALI:Graphen PaperSensor	47.041	Direct	1510006	-	113,557
NSF-CQP-EAGER: Dynamic Characterist	47.041	Direct	1545804	-	5,302
NSF-MTTI-Active Mobile Sensor Net	47.041	Direct	1538105	-	7,343
NSF-Workshop on Solar Power	47.041	Direct	1543702	-	4,771
NSF-CWS-RET Site:Promoting Learning	47.041	Direct	1542383	8,486	227,362
NSF-MTTI-Water Flow In Soils	47.041	Direct	1562522	-	28,864
NSF-SFI-SusChEM:Efficient Hydrolysi	47.041	Direct	1605105	-	11,951
NSF-LSTI-I-Corps Device Wheelchair	47.041	Direct	1645522	-	1,275
NSF-SFI-INFIEWS/T3 Conservation	47.041	Direct	CBET-1639342	348,741	535,823
NSF-GLRC-The Role of Citizen Scienc	47.041	Direct	CBET-1644860	-	22,124
NSF-GLRC-CAREER:Underwater Acoustic	47.041	Direct	1651135	-	61,592
NSF-IMP-Nanofabrication Three-Dimen	47.041	Direct	CMMI-1661699	-	108,409
NSF-ICC-Wearable Electronics	47.041	Direct	1710862	-	116,019
NATIO-MTTI-Image-Data-Driven Learn	47.041	Direct	1742656	-	10,607
NSF-ICC-Transformation Optics	47.041	Direct	1709991	-	58,388
NSF-MuSTI-Collab Rsch:Surface Tensi	47.041	Direct	1749634	-	56,024
NSF-ICC-Cyber Risk Management	47.041	Direct	1739422	-	119,356

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Research and Development Cluster (continued)					
National Science Foundation (continued)					
Engineering Grants (continued):					
NSF-AIM-CAREER: Battery Lifetime	47.041	Direct	1651256	\$ -	\$ 79,867
CGENE-LSTI-Non-Chromatographic Tech	47.041	CGeneTech	SUBAWARD #1720774-MTU	-	108,397
GEORG-LSTI-Engineering Center CMaT	47.041	Georgia Institute of Technology	SUBAWARD RJ375-G6	-	1,698
NSF-LSTI-Stem Cell Patch-Vasculatur	47.041	Direct	1703570	-	41,118
re:3D-IMP-Increasing Maker Manufact	47.041	re:3D Inc	MICHIGAN TECH AGRMNT #1705068	-	28,602
STABI-CQP-High Brightness Fluoropho	47.041	Stabilux Biosciences Inc.	MICHIGAN TECH AGMT #1702043	-	91,956
				<u>392,095</u>	<u>2,431,108</u>
Mathematical and Physical Sciences:					
NSF-SFI-Hydrocarbon Transportation	47.049	Direct	CHE-1230803	-	7,922
NSF-BRC-Tunable Nitric Oxide	47.049	Direct	DMR-1410192	-	7,069
NSF-MuSTI-MRI Electron Microscope	47.049	Direct	DMR-1429232	-	112,498
NSF-IMP-Domain Mechanisms	47.049	Direct	DMR-1409317	-	45,895
NSF-IMP-Collab Research-Martensites	47.049	Direct	1506936	-	65,849
NSF-High Order Eigenvalue Problems	47.049	Direct	1521555	-	46,842
NSF-EPSSI-Galactic Plane Morphology	47.049	Direct	1607415	-	159,526
NSF-LSTI-New Identity of Galectin-3	47.049	Direct	1608537	-	45,931
NSF-CAREER:Engrg Bimetallic Nanost	47.049	Direct	1651307	-	29,869
NSF-P-adic of Lubin-Tate Tower	47.049	Direct	1748706	-	23,975
NSF-MRI: Acquisition Atomic Microsc	47.049	Direct	1725818	-	135,669
				<u>-</u>	<u>681,045</u>
Geosciences:					
NSF-CAREER Flood Risk Projections	47.050	Direct	EAR-1053655	-	23,216
NSF-EPSSI-CAREER-Magnet Fingerprint	47.050	Direct	EAR-1149434	-	36,982
NSF-CWS2-South Florida Water	47.050	Direct	EAR-1204474	-	9,607
NSF-CWS2-Impacts of Global Transpor	47.050	Direct	ICER-1313755	12,893	77,755
NSF-EPSSI-Collab Research:Peat Fire	47.050	Direct	1464264	-	1,003
NSF-EPSSI-Single Silicate Crystals	47.050	Direct	1519967	-	55,158
NSF-EPSSI-Heterogeneous Ice Nucleat	47.050	Direct	1541998	-	70,201
NSF-EPSSI-EAGER: Aerosol Effects	47.050	Direct	1623429	-	96,312
NSF-AIM-Making Wave Energy	47.050	Direct	1635362	-	51,756
NSF-EPSSI-MRI:Develop Mapping Syste	47.050	Direct	1625598	-	117,751
NSF-AIM-Collaborative Rsch:Wave Ene	47.050	Direct	1702327	-	54,459
NSF-EPSSI-Magma Storage	47.050	Direct	1654128	-	99,636
NSF-EPSSI-Aerosol-Cloud Interaction	47.050	Direct	1754244	-	28,570
NSF-GLRC-Collaborative Rsch:Groundw	47.050	Direct	1743370	-	3,600
NSF-EPSSI-Correlated Random Process	47.050	Direct	1639868	-	74,693
INTER-Bioenergy Development	47.050	InterAmerican Institute for Global Change Research	GRANT AGREEMENT FOR CRNIII	3,891	4,266
MOLIN-Black Carbon Emissions	47.050	Molina Center for Energy and the Environment	AGREEMENT MTU MCE2	-	14,166
UNIVE-CWS-Experimental Frameworks	47.050	University of New Hampshire	SUB 14-066, PRIME ICER-1313804	-	63,485
				<u>16,784</u>	<u>882,616</u>
Computer and Information Science and Engineering:					
NSF-ICC-Graph Sparsification	47.070	Direct	CCF-1318694	-	(850)
NSF-ICC-CAREER-Integrated Research	47.070	Direct	CCF-1349984	-	14,432
CAREER-ICC-Heterogeneous Manycore	47.070	Direct	CCF-1350206	-	46,019
NSF-ICC-Collaborative Research	47.070	Direct	CNS-1422342	-	31,038
NSF-AIM- Architecture Optimization	47.070	Direct	CNS-1446622	-	30,484
NSF-AIM-CAREER:Autonomous System	47.070	Direct	1453886	-	28,613
NSF-ICC-XPS Collaborative Sphinx	47.070	Direct	1533828	-	161,628
NSF-ICC-EAGER:NeTS Under-Ice Mobile	47.070	Direct	1551067	-	107,136
NSF-ICC-Spatio-Temporal Correlation	47.070	Direct	1526152	-	60,682
NSF-AIM-Collab Research:CRISP Type2	47.070	Direct	1541000	-	242,697
NSF-ICC-Scalable Spectral Sparsfica	47.070	Direct	CCF-1618364	-	76,506
NSF-ICC-CSR:Small:Miss Ratio Curves	47.070	Direct	1618384	-	97,533
NSF-ICC-SHF:SMALL:Collaborative Rsh	47.070	Direct	1745748	-	3,716
NSF-ICC-FNR-Algorithm CORES	47.070	Direct	1708299	-	30,700
				<u>-</u>	<u>930,334</u>
Biological Sciences:					
NSF-ESC-FFC-Yellowston Wolves LTREB	47.074	Direct	DEB-1245335	-	(43)
NSF-ESC-FFC-FNR-Nitrate Deposition	47.074	Direct	DEB-1251529	-	33,228
NSF-LSTI-Targeting microRNAs	47.074	Direct	IOS-1340001	216,967	340,557
NSF-FFC-ESC-Peatland C Fluxes	47.074	Direct	DEB-1354370	-	81,115
NSF-CCSR-IDBR Unconventional Antenn	47.074	Direct	DBI-1353664	-	30,140
NSF-ESC-FFC-LTREB Terrestrial Chain	47.074	Direct	1453041	-	74,836
NSF-ESC-FNR-Career Riverine Ecosys	47.074	Direct	1451919	-	142,948

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Research and Development Cluster (continued)					
National Science Foundation (continued)					
Biological Sciences (continued):					
NSF-LSTI-FFC-ABI Innovation G2P	47.074	Direct	1458130	\$ -	\$ 87,217
NSF-LSTI-Dimensions: Collaborative	47.074	Direct	1737877	-	36,596
COLOR-ESC-FFC-Peru's Cordillera	47.074	Colorado State University	SUBAWARD #G-96772-1	-	11,700
				<u>216,967</u>	<u>838,294</u>
Social, Behavioral, and Economic Sciences:					
NSF-GLRC-Toxic Iron-Mining Contam	47.075	Direct	SES-1430755	-	21,013
Education and Human Resources:					
NSF-Theory of Productive Math Use	47.076	Direct	AMENDMENT NO. 002	-	18,802
NSF-Revamping Robotics Education	47.076	Direct	1501335	7,644	116,159
NSF-Agile Communicator-Software	47.076	Direct	1504860	-	31,130
NSF-ICC-EDU:Collaborative:VACCS	47.076	Direct	1523017	-	5,330
NSF-RISE-Building on MOSTs	47.076	Direct	1720566	-	84,862
REGEN-LIFT-Microaggressions in Team	47.076	Regents of the University of Michigan	SUBCONTRACT NO:3003298295	-	3,048
UNIVE-Promoting Reflective	47.076	University of Minnesota	A005354501 PTE: DUE-1540789	-	20,393
				<u>7,644</u>	<u>279,724</u>
Office of International and Integrative Activities:					
NSF-SFI-Bioenergy Development	47.079	Direct	OISE-1243444	320,088	866,710
NSF-LSTI-FNR-IREs: Biosensors	47.079	Direct	1559445	-	74,894
				<u>320,088</u>	<u>941,604</u>
Total National Science Foundation				<u>953,578</u>	<u>7,149,822</u>
U.S. Environmental Protection Agency					
Great Lakes Program:					
USENV-Watermilfoil Control	66.469	Direct	GL-00E01928-0	76,262	149,296
USENV-Invasive Phragmites	66.469	Direct	GL-00E01929-0	132,830	160,907
LOYOL-Invaded Wetlands	66.469	Loyola University Chicago	516995-MTU	-	13,692
				<u>209,092</u>	<u>323,895</u>
P3 Award: National Student Design Competition for Sustainability:					
USENV-ASISC-End of Life Lithium-ion	66.516	Direct	SU-83929901	-	13,318
Performance Partnership Grants:					
INDEM-GLRC-PCBs Atmospheric	66.605	Indiana Department of Environmental Management	PO #0017534746	-	11,460
Total U.S. Environmental Protection Agency				<u>209,092</u>	<u>348,673</u>
U.S. Department of Energy					
No CFDA Number:					
BATTE-EPSSI-HOLODEC Participation	81.RD	Battelle Memorial Institute	332788	-	157,670
ARGON-AIM-Smart Grid Integration	81.RD	Argonne National Laboratory	7F-30037	-	80,468
BONNE-PERC-Transformer Protection	81.RD	Bonneville Power Administration	GRANT 66296	-	19,246
BATTE-APS-ADV ACCT-Torrefaction MSW	81.RD	Battelle Energy Alliance, LLC	ADVANCE ACCOUNT	-	8,335
HONEY-APS-Tailorable Plate Testing	81.RD	Honeywell Federal Manufacturing & Technologies, LLC	DE-NA0002839 / PO#N000189974	-	29,032
HONEY-APS-Fixture Design and Damage	81.RD	Honeywell Federal Manufacturing & Technologies, LLC	DE-NA0002839; PO#N000224420	-	9,234
HONEY-APS- Additive Manufactured	81.RD	Honeywell Federal Manufacturing & Technologies, LLC	#DE-NA0002839;PO#N000233495	-	24,144
HONEY-APS-Multi-Axis Resonant Fixtu	81.RD	Honeywell Federal Manufacturing & Technologies, LLC	PO N000254454	-	90,158
HONEY-APS-Fixture Design & Damage	81.RD	Honeywell Federal Manufacturing & Technologies, LLC	PO N000258189	-	23,082
HONEY-APS-Frequency Response Inspec	81.RD	Honeywell Federal Manufacturing & Technologies, LLC	PO# N000254420	-	47,693
RUTGE-IMP-STEM Analysis Ni-Rich Pos	81.RD	Rutgers The State University of New Jersey	CONFIRMING ORDER 1802030	-	1,039
SANDI-AIM-FNR-Wave Energy	81.RD	Sandia National Laboratories	PO#1697772	-	6,656
UTBAT-IMP-Lithium Interface	81.RD	UT-Battelle, LLC	SUBCONTRACT # 4000140845	-	73,416
UTBAT-ESC-FFC-Climate Change	81.RD	UT-Battelle, LLC	SUBCONTRACT NO. 4000146950	-	74,796
UNIVE-SFI-Great Lakes Bioenergy	81.RD	University of Wisconsin-Madison	AGREEMENT NUMBER 812K943	-	92,163
				<u>-</u>	<u>737,132</u>
Office of Science Financial Assistance Program:					
USENE-ESC-FFC-Tropical C Cycling	81.049	Direct	DE-SC0012000	77,556	122,404
USENE-EPSSI-Ice Microphysical Props	81.049	Direct	DE-SC0011690	-	65,150
USENE-MuSTI-Junctions BNNTs/CNTs	81.049	Direct	DE-SC0012762	-	(199)
USENE-IMP-Yr1-Grain Boundary Struct	81.049	Direct	DE-SC0016314	-	106,471
AEROD-EPSSI-Cloud Particle Form	81.049	Aerodyne Research	SUB #ARI 11045-1 DE-SC00011935	-	6,185
AEROD-EPSSI-BC5 Black Carbon	81.049	Aerodyne Research	SUB NO. ARI 11326-1	-	27,771
				<u>77,556</u>	<u>327,782</u>

See Notes to Schedule of Expenditures of Federal Awards.

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Federal Grantor/Pass-Through Grantor/Program or Cluster Title	Federal CFDA Numbe	Passed Through	Award Number	Passed Through to Subrecipients	Federal Expenditures
Research and Development Cluster (continued)					
U.S. Department of Energy (continued)					
Conservation Research and Development:					
USENE-APS-FNR-Spraywall Interaction	81.086	Direct	DE-EE0007292	\$ 125,031	\$ 207,647
USENE-APS-FNR-Natural Gas Engine	81.086	Direct	DE-EE0007331	-	184,348
				<u>125,031</u>	<u>391,995</u>
Renewable Energy Research and Development:					
GASTE-SFI-Hydrocarbon Fuels	81.087		SUBCONTRACT NO. S549	-	29,139
THREE-MuSTI-Novel Lonomers	81.087	Gas Technology Institute 3M Corporation	3M PO #USMMM3KR5T C.O.3	-	216,664
				<u>-</u>	<u>245,803</u>
Fossil Energy Research and Development:					
USENE-IMP-FNR-Nickle-Base Superallo	81.089	Direct	DE-FE0027822	-	112,330
Advanced Research Projects Agency - Energy:					
USENE-APS-NEXTCAR Hybrid	81.135	Direct	DE-AR0000788	-	774,116
LANZA-SFI-LCA Support Gas Conversio	81.135	Lanza Tech	MICHIGAN TECH AGMT #1306017	-	21,079
UNIVE-IMP-Dry Cooling of Power	81.135	University of Maryland	SUBAWARD NO. 30353-Z7214003	-	87,860
UNIVE-ICC-Packetized Energy Manage	81.135	University of Vermont	30382 SUB52046 MICHIGAN	-	76,020
				<u>-</u>	<u>959,075</u>
Total U.S. Department of Energy				<u>202,587</u>	<u>2,774,117</u>
U.S. Department of Education					
Education Research, Development and Dissemination:					
OHIOS-Enhancing Middle School Math	84.305	Ohio State University	60046917 SUB# R305A150365	-	4,392
UNIVE-Enhancing Middle School Math	84.305	University of Cincinnati	011275-002	-	84,146
				<u>-</u>	<u>88,538</u>
U.S. Department of Health and Human Services					
No CFDA Number:					
PEDIA-IMP-Stent Studies	93.RD	PediaStent LLC	#1702015	-	3,611
PEDIA-IMP-Novel Zinc Materials	93.RD	PediaStent LLC	#1802057	-	1,605
REGEN-Pollution Exposure Pregnancy	93.RD	Regents of the University of Michigan	ID#00008640/PO3004880396	-	18,028
				<u>-</u>	<u>23,244</u>
Oral Diseases and Disorders Research:					
NIH-LSTI-Dev Multi-epitope L2 Bacte	93.121	Direct	1 R15 DE025812-01A1	34,277	183,617
Human Genome Research:					
NIH-LSTI-Rare Variant Assoc Studies	93.172	Direct	1 R15 HG008209-01A1	-	130,992
BAYLO-LSTI-Next Gen Bioinformatics	93.172	Baylor College of Medicine	PO#5601137158/R501HG008115-03	-	22,404
				<u>-</u>	<u>153,396</u>
National Center on Sleep Disorders Research:					
UNIVE-Sleep Disordered Breathing	93.233	University of Michigan	SUB#3002300214 1-R01-HL1059991	-	42,107
Alcohol Research Programs:					
NIH-LSTI-Alcohol and Neurovascular	93.273	Direct	1R01AA024892-01A1	-	240,514
Discovery and Applied Research for Technological Innovations to Improve Human Health:					
NIH-IMP-Zn-Based Stent Materials	93.286	Direct	1R21EB019118-01A1	-	8,548
NIH-LSTI-Magnetoelastic System	93.286	Direct	1R15EB023648-01	-	82,593
NIH-IMP-Suppress Intimal Hyperplasi	93.286	Direct	1R21EB024034-01A1	-	90,306
				<u>-</u>	<u>181,447</u>
Cancer Detection and Diagnosis Research:					
NIH-BRC-Virtual Breast Project	93.394	Direct	1 R15 CA179409-01A1	-	150,229
UNIVE-LSTI-Ultrasonic Ablation	93.394	University of Wisconsin-Madison	SUB #494K686 PRIME R01CA112192	-	8,183
				<u>-</u>	<u>158,412</u>
Cancer Treatment Research:					
NIH-LSTI-Vessel Regeneration	93.395	Direct	1R15CA202656-01	-	181,912
Cardiovascular Diseases Research:					
NIH-LSTI-Rats with High Salt Intake	93.837	Direct	1R15HL122952-01A1	-	49,186
NIH-IMP-Stent Materials	93.837	Direct	1R15HL129199-01	3,602	175,465
NIH-LSTI-Brain (Pro)renin	93.837	Direct	1R15HL129213-01A1	-	152,962
NIH-LSTI-Mindfulness & Neural Cardi	93.837	Direct	1R15HL140596-01	-	18,044
				<u>3,602</u>	<u>395,657</u>

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Research and Development Cluster (continued)					
U.S. Department of Health and Human Services (continued)					
Lung Diseases Research:					
NIH-BRC-Sleep Deprivation in Women	93.838	Direct	IR15HL122919-01	\$ -	\$ 142,173
Arthritis, Musculoskeletal and Skin Diseases Research:					
GEORG-LSTI-Rats w/ Segemented Bone	93.846	Georgia Institute of Technology	RG760-G3 - AMENDMENT 2	-	20,000
Diabetes, Digestive, and Kidney Diseases Extramural Research:					
NIH-LSTI-miR-483 in Pancreatic Cell	93.847	Direct	1R15DK103197-01A1	-	117,930
Biomedical Research and Research Training:					
NIH-LSTI-Oligodeoxynucleotide	93.859	Direct	1R15GM109288-01	-	15,980
NIH-BRC-Lysosomal pH in Living Cell	93.859	Direct	1 R15 GM114751-01	-	112,782
NIH-LSTI-Adhesive PEG-fibrinogen	93.859	Direct	1R15GM112082-01	-	40,992
NIH-LSTI-Role of Toolkit Genes	93.859	Direct	1 R15 GM107801-01A1	-	167,222
NIH-LSTI-Biomimetic Tissue Adhesive	93.859	Direct	2 R15 GM104846-02	-	59,040
NIH-LSTI-Oligodeoxy Nucleotide	93.859	Direct	2R15GM109288-02	-	89,541
				-	485,557
Child Health and Human Development Extramural Research:					
GEORG-ICC-Music Based Robotic	93.865	George Washington University	SUB #16-S12 / 7R01HD082914-03	-	43,844
REGEN-Impact ICU Acoustic Environ	93.865	Regents of the University of Michigan	PO#3004302090	-	8,047
				-	51,891
Total U.S. Department of Health and Human Services				<u>37,879</u>	<u>2,377,857</u>
Central Intelligence Agency					
No CFDA Number:					
APPLI-FNR-The Amon Hen Project	99.RD	Applied Technology Associates	MTU SUBCONTRACT #180637	-	50,497
VISIO-CORE3D	99.RD	Vision Systems Inc	VSI SUBCONTRACT #2017-0288	-	88,669
Total Central Intelligence Agency				-	139,166
Total Research and Development Cluster				<u>3,407,587</u>	<u>32,605,790</u>
Other Programs					
U.S. Department of Agriculture					
No CFDA Number:					
USAGR-ESC-FFC-Instruct Climate	10.U01	Direct	12-JV-11242306-130	23,366	23,366
USAGR-ESC-FFC-Belowground Ecosystem	10.U01	Direct	13-JV-11242306-039	-	17,648
USAGR-ESC-FFC-Climate Change	10.U01	Direct	15-CR-11242306-043	-	91,310
USAGR-ESC-FFC-Fire Preparedness	10.U01	Direct	15-CS-11242306-044	-	7,452
USAGR-ESC-FFC-Climate Change	10.U01	Direct	15-CR-11242306-059	-	72,482
USFOR-Completion of TRACS Surveys	10.U01	Direct	15-CS-11090100-016	-	76,550
USAGR-Ottawa & Hiawatha Nat'l Fores	10.U01	Direct	16-CS-11091000-014	-	10,261
USAGR-ESC-FFC-Support Forest Climat	10.U01	Direct	16-CR-11242306-095	-	61,094
USAGR-SFI-FFC-Ottawa NF Earthworms	10.U01	Direct	16-CS-11242306-135	-	15,637
USAGR-ESC-FFC-Climate Change Center	10.U01	Direct	16-CS-11242306-147	-	28,121
USAGR-ESC-FFC-Belowground Ecosystem	10.U01	Direct	17-JV-11242306-011	-	40,891
USAGR-ESC-FFC-Climate Change Risks	10.U01	Direct	17-CR-11242306-049	-	723
USAGR-Archaeological Collection-HNF	10.U01	Direct	18-CS-11091000-002	-	5,014
USAGR-ESC-FFC-Forested Watersheds	10.U01	Direct	18-CR-11242306-018	-	102,669
USAGR-Archaeological Collection-ONF	10.U01	Direct	18-CS-11090700-004	-	1,623
				<u>23,366</u>	<u>554,841</u>
Child and Adult Care Food Program:					
Child Care Food Program	10.558	Michigan Dept of Education		-	13,110
Wood Utilization Assistance:					
RENEW-FFC-Wood Innovation Team	10.674	Renewable Resource Solutions LLC	CONTRACTOR AGMNT DATED 10/4/16	-	715
Partnership Agreements:					
USAGR-ESC-FFC-Climate Change	10.699	Direct	17-CR-11242306-031	-	41,393
Total U.S. Department of Agriculture				<u>23,366</u>	<u>610,059</u>
U.S. Department of Commerce					
No CFDA Number:					
MICHI-GLRC-Great Lakes Literacy YR2	11.U02	Michigan State University	PO298933	-	803

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Other Programs (continued)					
U.S. Department of Commerce (continued)					
Sea Grant Support:					
UNIVE-GLRC-Angela Yu Fellowship	11.417	University of Michigan	3003997385	\$ -	\$ 23,695
REGEN-GLRC-Great Lakes Anglers	11.417	Regents of the University of Michigan	NA180AR4170102 / 3004932532	-	13,391
				-	37,086
				-	37,889
Total U.S. Department of Commerce					
U.S. Department of Defense					
No CFDA Number:					
OFFIC-APS-Hands-On Prof Development	12.U03	Direct	EMAIL DATED 2/26/18	-	18,436
OFFIC-APS-Propulsion Systems PDC	12.U03	Direct	EMAIL DATED 4/6/17	-	10,214
OFFIC-APS-Propulsion	12.U03	Direct	EMAIL DATED 9/15/17	-	23,549
TECHN-PIOI-MTU-UNITE/Summer Youth	12.U03	Technology Student Association	MTU AGREEMENT #1611025	-	27,890
				-	80,089
Basic and Applied Scientific Research:					
OFFIC-GLRC-Talent Pipeline	12.300	Direct	N00014-15-1-2796	-	205,496
Basic, Applied, and Advanced Research in Science and Engineering:					
TECHN-PIOI-UNITE Program	12.630	Technology Student Association	MTU #1712017	-	5,620
Total U.S. Department of Defense					
U.S. Department of Interior					
No CFDA Number:					
USGEO-Hawaiian Volcano Observatory	15.U04	Direct	IPA AGREEMENT DATED 12/4/17	-	35,000
John Payne - Intergovernmental Pers	15.U04	Direct	IPA EXTENSION DATE 3/20/15	-	1,649
				-	36,649
Cooperative Research and Training Programs - Resources of the National Park System:					
USPAR-ESC-FFC-Isle Royale Membership	15.945	Direct	TASK AGREEMENT NO P15AC00157	-	19,567
Total U.S. Department of Interior					
U.S. Department of Labor					
Mine Health and Safety Grants:					
USLAB-FY16 Mine Safety	17.600	Direct	MS-28718-16-55-R-26	-	1,425
USLAB-FY17 Mine Safety	17.600	Direct	MS-31125-17-55-R-26	-	249,257
				-	250,682
U.S. Department of Transportation					
No CFDA Number:					
USTRA-MTTI-Rail Learning System	20.U05	Direct	DTFR5317P00053	-	22,054
ENGIN-MTTI-Workshop DATA Needs	20.U05	Engineering & Software Consultants, Inc	ESC INC SUBCONTRACT #16-36	-	22,355
MITRA-MTTI-Roadsoft/MDOT Safety Uni	20.U05	Michigan Dept of Transportation	2014-0952 Z1, JOB #109731	-	12,488
MITRA-CTT-Bridge Design Phase II	20.U05	Michigan Dept of Transportation	CONTRACT NO 2013-0506 AMEND A2	-	228,052
MITRA-MTTI-2017 LTAP	20.U05	Michigan Dept of Transportation	2015-0027 AUTH Z7, Z8, & Z9	-	75,345
MITRA-MTTI-MIRE Upgrades Roadsoft	20.U05	Michigan Dept of Transportation	AUTHORIZATION NO. Z11	-	46,553
MITRA-MTTI-MERL 2017	20.U05	Michigan Dept of Transportation	FEDERAL GRANT #STP-1784(026)	-	3,919
MITRA-MTTI-Roadsoft 2017	20.U05	Michigan Dept of Transportation	2014-0952 AUTH Z12	-	421,971
MITRA-PIOI-NSTI 2017	20.U05	Michigan Department of Transportation	#2017-0473	-	33,596
SNYDE-IMP-Pavement Technology YR3	20.U05	Snyder & Associates	PRIME DTFH61-12-H-00010	-	(3,952)
SNYDE-IMP-Concrete Technology YR4&5	20.U05	Snyder & Associates	PRIME #DTFH61-12-H-00010	-	(3,352)
				-	859,029
Highway Research and Development Program:					
USTRA-MTTI-Eastern Region TTAP Cntr	20.200	Direct	DTFH6114H00006	-	71,481
Highway Planning and Construction:					
MITRA-MTTI-TRAC Program	20.205	Michigan Dept of Transportation	CONTRACT NO 2016-0059 #1196730	-	25,068
MITRA-MTTI-Traffic Safety Engineer	20.205	Michigan Dept of Transportation	CONTRACT NO. 2016-0332	-	362
MITRA-CTT-Roadsoft 2018	20.205	Michigan Dept of Transportation	2017-0299 AUTH Z1 JOB 202141NI	-	466,537
MITRA-CTT-MERL 2018	20.205	Michigan Dept of Transportation	2018-0057 AUTH Z2 JOB 202139	-	46,804
				-	538,771
Highway Training and Education:					
MITRA-CTT-2018 LTAP	20.215	Michigan Dept of Transportation	LTAP 2015-0027 Z10 Z11 Z12	-	363,030
Total U.S. Department of Transportation					

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Other Programs (continued)					
Federal Mediation and Conciliation Service					
Labor Management Cooperation:					
FEDER-Labor-Mgmt Staff Mentoring	34.002	Direct	15-MI/PS-005	\$ -	\$ 12,490
National Aeronautics and Space Administration					
Science:					
USNAS-EPSSI-FNR-Astronomy Picture	43.001	Direct	NNX14AP36G	-	80,383
USNAS-GLRC-FNR-BGrunert Fellowship	43.001	Direct	NNX15AN59H	-	46,643
USNAS-FNR-EPPSI-MBrege Fellowship	43.001	Direct	NNX15AN57H	-	36,409
USNAS-EPSSI-FNR-Fellowship-Bouali	43.001	Direct	NNX16A051H	-	42,928
USNAS-FFC-FNR-Fellowship-K Meingast	43.001	Direct	NNX16AN96H	-	42,957
USNAS-FNR-Chandrakar-Fellowship	43.001	Direct	80NSSC17K0449	-	38,868
USNAS-EPSSI-FNR-Astronomy Picture	43.001	Direct	80NSSC17M0076	-	77,376
				-	365,564
Education:					
UNIVE-FNR-PIOI-MSGC-Aviation	43.008	University of Michigan	PO3004471507	-	3,200
UNIVE-FNR-K. Nevorski Fellowship	43.008	University of Michigan	PO3004471507	-	2,817
UNIVE-LSTI-FNR-T. Bye Fellowship	43.008	University of Michigan	PO3004471507	-	2,021
UNIVE-LSTI-FNR-M. Kilgas Fellowship	43.008	University of Michigan	PO3004471507	-	5,000
UNIVE-MSGC-LIFT-FNR-FY17 Admin.	43.008	University of Michigan	PO3004471507	-	3,675
UNIVE-FNR-MSGC-Participant-ROV STEM	43.008	University of Michigan	PO3004471507	-	10,000
UNIVE-FNR-M Guadagno Fellowship	43.008	University of Michigan	PO3004471507	-	2,500
				-	29,213
				-	394,777
Total National Aeronautics and Space Administration					
National Endowment for the Humanities					
Promotion of the Arts Grants to Organizations and Individuals:					
Listening to the Parks	45.024	Direct	16-5400-7207	-	4,388
Promotion of the Arts Partnership Agreements:					
The Mountaintop	45.025	Arts Midwest	ID NUMBER 00020478	-	2,900
National Endowment for the Humanities					
Promotion of the Humanities_Federal/State Partnership:					
MICHI-World War I Remembered	45.129	Michigan Humanities Council	HU019-18	-	2,440
Promotion of the Humanities - Division of Preservation and Access:					
NATIO-GLRC-CC Historical Spatial	45.149	Direct	PW-234885-16	-	73,555
NATIO-Map and Blue Print Assessment	45.149	Direct	PG-252802-17	-	6,000
				-	79,555
				-	89,283
Total National Endowment for the Humanities					
National Science Foundation					
Engineering Grants:					
NSF-MuSTI-I-Corps: Software Aircraft	47.041	Direct	1740374	-	12,964
NSF-MuSTI-I-Corps: Carbon Nanotube	47.041	Direct	1756908	-	49,239
NSF-LSTI-I-Corps: Synthesis Tech	47.041	Direct	1754235	-	35,562
				-	97,765
Mathematical and Physical Sciences:					
NSF-Statistics-Participant	47.049	Direct	1719789	-	9,999
Computer and Information Science and Engineering:					
NSF-AIM-NRI:Co-Robots to Engage	47.070	Direct	IIS-1426989	-	110,054
NSF-ICC-Participant-Workshop:Think	47.070	Direct	1833219	-	906
				-	110,960
Education and Human Resources:					
DAPCE-PIOI-PAAMEE	47.076	DAPCEP	CONTRACT NUMBER 2017 SUM-002	-	144,024
EASTE-GLRC-Participant-GRACE	47.076	Eastern Michigan University	PO# P0044865	-	16,744
WAYNE-GLRC-FACTs & Careers STEM	47.076	Wayne State University	SUBAWARD# WSU17042	-	33,195
NSF-Professoriate Progression	47.076	Direct	HRD-1305678	-	13,362
NSF-FNR-Meingast GRFP	47.076	Direct	1546592	-	2,833
NSF-ESC-FFC-FNR-Beller GRFP	47.076	Direct	1546592	-	2,833
NSF-IMP-FNR-Morgan GRFP	47.076	Direct	1546592, AMEND NO. 1	-	41,539
NSF-FNR-Cummings GRFP	47.076	Direct	1546592, AMEND. NO. 001	-	46,000

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Other Programs (continued)					
National Science Foundation (continued)					
Education and Human Resources (continued):					
NSF-SFI-GRFP	47.076	Direct	1546592, AMEND NO. 3	\$ -	\$ 24,724
NNSF-FNR-Guillory GRFP	47.076	Direct	1546592,AMEND. NO. 004	-	54,482
NSF-FNR-Rebekka Guyon Fellowship	47.076	Direct	1546592,AMEND. NO. 004	-	43,167
NSF-LIFT-FNR-ETS-IMPRESS	47.076	Direct	1742286	-	18,471
NSF-FNR-RISE-NOYCE Fellows Program	47.076	Direct	1758392	-	40,279
				<u>-</u>	<u>481,653</u>
Total National Science Foundation				<u>-</u>	<u>700,377</u>
Small Business Administration					
Small Business Development Centers:					
SIXCO-Small Business Tech Dev	59.037	UPWARD Talent Council	CONTRACT AGREEMENT	4,578	4,744
GRAND-Region 1 SBDC Host	59.037	Grand Valley State University	MISBDC-2018-01	-	157,489
Total Small Business Administration				<u>4,578</u>	<u>162,233</u>
Environmental Protection Agency					
Environmental Finance Center Grants:					
USENV-CTT-EPA Region 5	66.203	Direct	00E01979	-	117,816
Surveys, Studies, Investigations, Demonstrations, and Training Grants - Section 1442 of the Safe Drinking Water Act:					
UNIVE-CTT-Environmental Finance	66.424	University of North Carolina at Chapel Hill	5108709	-	2,812
Environmental Education Grants:					
USENV-GLRC-Great Lakes Stewards	66.951	Direct	NE-00E02260-0	2,143	26,202
Total Environmental Protection Agency				<u>2,143</u>	<u>146,830</u>
U.S. Department of Education					
Gaining Early Awareness and Readiness for Undergraduate Programs:					
MILAB-PIOI-Gear Up 2017	84.334	Michigan Dept of Labor & Economic Growth	GRANT #16-00-07	-	15,095
MILAB-PIOI-Gear Up 2018	84.334	Michigan Dept of Labor & Economic Growth	GRANT NUMBER 16-00-07	-	15,762
				<u>-</u>	<u>30,857</u>
Improving Teacher Quality State Grants:					
MIEDU-RISE-Physical Science	84.367	Michigan Department of Education	160290-023	-	13,206
Total U.S. Department of Education				<u>-</u>	<u>44,063</u>
Total Other Programs				<u>30,087</u>	<u>4,628,415</u>
Total Expenditures of Federal Awards				<u>\$ 3,437,674</u>	<u>\$ 86,805,757</u>

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Notes to Schedule of Expenditures of Federal Awards

Year Ended June 30, 2018

1. Basis of Presentation

The accompanying schedule of expenditures of federal awards (Schedule) includes the federal grant activity of Michigan Technological University (University) under programs of the federal government for the year ended June 30, 2018. Expenditures reported on the Schedule are reported on the same basis of accounting as the financial statements, although the basis for determining when federal awards are expended is presented in accordance with the requirements of the Uniform Guidance, wherein certain types of expenditures are not allowable or are limited as to reimbursement. Therefore, some amounts presented in the Schedule may differ from amounts presented in, or used in the preparation of, the financial statements.

Because the Schedule presents only a selected portion of the operations of the University, it is not intended to, and does not present the financial position, changes in net position, or cash flows of Michigan Technological University.

2. Summary of Significant Accounting Policies

Expenditures reported on the Schedule are reported on the accrual basis of accounting, which is described in Note 1 to the University's financial statements. Such expenditures are recognized following the cost principles contained in Uniform Guidance, wherein certain types of expenditures are not allowable or are limited as to reimbursement. Negative amounts shown on the Schedule represent adjustments or credits made in the normal course of business to amounts reported as expenditures in prior years. Pass-through entity identifying numbers are presented where available.

3. Indirect Cost Rate

The University has not elected to use the 10% de minimis indirect cost rate allowed under the Uniform Guidance.

4. Major Programs and Clusters

As defined in the Uniform Guidance, the Student Financial Assistance programs and Research and Development programs are considered to be clusters of programs and, accordingly, have been classified as one program for testing purposes. The Research and Development Cluster has been defined as a major program.

5. Federal Perkins Loan Program

The University utilizes the services of Heartland ECSI (ECSI) to administer the repayment of Perkins Loans and perform certain due diligence procedures. During the 2017/2018 fiscal year, total program disbursements under the Federal Perkins Loan Program were \$1,732,800, which included no current year federal contribution. There was \$11,181,363 of Federal Perkins Loans (CFDA Number 84.038) outstanding as of June 30, 2018.

Michigan Technological University

Schedule of Findings and Questioned Costs

Year Ended June 30, 2018

Section I – Summary of Auditor’s Results

Financial Statements

Type of auditor's report issued: Unmodified

Internal control over financial reporting:

Material weakness identified? _____ Yes X No

Significant deficiency identified not considered
to be material weakness? _____ Yes X None reported

Noncompliance material to financial statements
noted? _____ Yes X No

Federal Awards

Internal control over major programs:

Material weakness identified? _____ Yes X No

Significant deficiency identified not considered
to be material weakness? _____ Yes X None reported

Type of auditor’s report issued on compliance for
major programs: Unmodified

Any audit findings disclosed that are required to
be reported in accordance with 2 CFR
section 200.516(a)? _____ Yes X No

Michigan Technological University

Schedule of Findings and Questioned Costs

Year Ended June 30, 2018

Section I – Summary of Auditor’s Results (continued)

Federal Awards (continued)

Identification of Major Programs:

<u>Federal CFDA Number</u>	<u>Name of Federal Program or Cluster</u>
Various	Research and Development Cluster

Dollar threshold used to distinguish between
Type A and Type B programs:

\$ 2,604,173

Auditee qualified as low-risk auditee? X Yes _____ No

Section II – Financial Statements Findings

None.

Section III – Federal Award Findings and Questioned Costs

None.

Michigan Technological University

Summary Schedule of Prior Audit Findings

Year Ended June 30, 2017

None.