

CURRICULUM VITAE

Hadi Fekrmandi, PhD, PE

South Dakota School of Mines and Technology

Department of Mechanical Engineering

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EDUCATION

Florida International University Ph.D., Mechanical Engineering	2011-2015
University of Tabriz M.S., Mechanical Engineering	2006-2009
University of Tabriz B.S., Mechanical Engineering	2001-2006

PROFESSIONAL EXPERIENCE

Assistant Professor of Mechanical Engineering South Dakota Mines, Rapid City, SD	2017-present
Post Doctoral Research Associate Applied Research Center (ARC), Miami, FL	2015-2017
Research Assistant Florida International University (FIU), Miami, FL	2011-2015
Instructor University of Applied Science and Technology, Zanjan, Iran	2009-2011
Teaching Assistant University of Tabriz, Tabriz, Iran	2006-2009

RESEARCH INTERESTS

Robotics and Mechatronics, Control Theory, and Autonomous Systems

PROFESSIONAL ORGANIZATION MEMBERSHIPS

CEPS NSF Industry/University Cooperative Research Center (IUCRC)	Since 2022
Institute of Electrical and Electronics Engineers (IEEE)	Since 2018
Organization Committee Member, SPIE Conference on Smart Structures	Since 2018
Professional Engineering License (CA) [Link]	Since 2016
Professional Certificate in Robotics Engineering (FIU)	Since 2014
American Society of Mechanical Engineers (ASME)	Since 2010
Golden Key International Honor Society (GK)	Lifetime Member
International Society for Optics and Photonics (SPIE)	Lifetime Member

HONORS

Research Laboratory Equipment Award	L3Harris Technologies 2021
Faculty Summer Research Fellowship	NASA Marshall Space Flight Center 2020
Post-Doctoral Fellowship	US Department of Energy, ARC 2015-2016
Dissertation Year Fellowship	University Graduate School, FIU 2014-2015
Graduate Assistantship	Mechanical and Materials Engineering, FIU 2011-2014
Conference Travel Funding Award	Graduate Professional Student Club, FIU 2014
Outstanding Graduate Research Poster	Material's Advantage Club, FIU 2013

MEDIA APPEARANCES

ME Department Newsletter: New research awards and publications from 2020-2021 [Link]	Dec, 2021
ME Department Newsletter: New research awards and publications from 2019-2020 [Link]	Dec, 2020
ME Department Newsletter: New research awards and publications from 2018-2019 [Link]	Dec, 2019
South Dakota Public Broadcasting Radio (SDPB), Innovation: CubeSat [Link]	Aug, 2019
NBC Local News TV (Newscenter1), Space exploration research ongoing at SD Mines [Link]	July, 2019
South Dakota Mines Research: Mines Team Works on CubeSat Swarm [Link]	Sep, 2019
South Dakota EPSCoR Portal, SD Mines Team Pushes to Put CubeSat Swarm in Space Link	Sep, 2019

RESEARCH AWARDS

Projects

- **Autonomous Guidance, Navigation, and Control for Lunar Surface Mobility Applications**
Funding Source: L3Harris Technologies
Grant Period: September 1, 2020 – August 30, 2021
Total Budget: \$27,368
PI: Hadi Fekrmandi
- **Advancing Swarm Self-Localization and Intelligent Maneuvering (SLIM) for Autonomous Unmanned Vehicles via Machine Learning**
Funding Source: Naval Surface Warfare Center (NSWC)
Grant Period: July 1, 2020 – June 31, 2023
Total Budget: \$150,000
PI: Hadi Fekrmandi, Randy Hoover (Co-PI)
- **Development of Fault Identification and Risk Management (FIRM) Intelligent Health Monitoring Systems: Application in Unmanned Underwater Vehicles (UUVs)**
Funding Source: Naval Undersea Warfare Center (NUWC)
Grant Period: Aug 7, 2019 – June 30, 2022
Total Budget: \$60,000
PI: Hadi Fekrmandi
- **Developing Small Satellite Formation Flying Capability by Distributed State Estimation and Intelligent Control of Swarm using Vision-based Guidance**
Funding Source: SD NASA EPSCOR
Grant Period: April 1, 2019 – September 30, 2020
Total Budget: \$105,000
PI: Hadi Fekrmandi, Randy Hoover (Co-PI), Zhen Ni (Co-PI, SDSU)

- **National Space Grant College and Fellowship Program - Opportunities in NASA STEM FY 2020 - 2024**
Funding Source: NASA
Grant Period: Feb 2020 – Feb 2024
Total Budget: \$ 2,755,000.00
PI: Edward Duke, Tom Durkin (Co-PI)
Collaborators: Drew Alton, Jason Ash, Hadi Fekrmandi, Lori Groven, Brennan Jordan, Carter Kerk, Todd Letcher, Kristie Maher, Jeff McGough, Margaret Norris, Curtis Price
- **NASA Apollo 50th – Apollo Next Giant Leap Student Challenge**
Funding Source: South Dakota Space Grant Consortium
Grant Period: Aug 2019 – Aug 2020
Total Budget: \$ 40,000
PI: Jason Ash
Co-PIs: Randy Hoover, Hadi Fekrmandi, Joseph Yracheta, Margaret Norris
- **Developing Software Algorithms for Robust File Transfer in Small Satellite Swarms**
Funding Source: L3Harris Technologies
Grant Period: Aug 2019 – Aug 2020
Total Budget: \$5,000
PI: Hadi Fekrmandi
- **SDSM&T Cubesat Team Formation**
Funding Source: South Dakota Space Grant Consortium
Grant Period: April 2018 – April 2021
Total Budget: \$ 10,090
PI: Jason Ash
Co-PIs: Charles Tolle, Margaret Norris, Hadi Fekrmandi, Lowell Kolb
- **Developing Active Humidity Control from Electronics Enclosures**
Funding Source: L3Harris Technologies
Grant Period: Aug 2018 – Dec 2020
Total Budget: \$ 8,000
PI: Hadi Fekrmandi
Involved Faculty: Jason Ash, Randy Hoover

Pending Research Grants

- **Pending Award (white paper submitted): Bio-hazard Environmental Assessment Contaminant Observation Network Sensors (BEACONS)**
Funding Source: Airforce Office of Scientific Research (AFOSR)
Grant Period: August 01, 2023 – July 31, 2026
Total Budget: \$ 1,000,000.
PI: Hadi Fekrmandi, SDSMT Co-PIs: Lisa Kunza, Shankar Ragi, Heidi Sieverding, David Waterman
SDSU PI: Kwanghee Won, DOE-PNNL PI: Radha Kishan Motkuri
- **Pending Award (white paper submitted): Distributed State Estimation for Intelligent Planning and Decision Making**
Funding Source: NAVAIR
Grant Period: June 01, 2023 – May 31, 2026
Total Budget: \$650,000
PI: Anthony Reid (John Hopkins-ARL, Maryland), Hadi Fekrmandi (Co-PI, SDSMT)

- **Pending Award (white paper submitted): Team Resilience and Intelligent Maneuvering (TRIM) for Airforce fleet of Unmanned Aerial Vehicles (UAVs)**
Funding Source: National Science Foundation (NSF)
Grant Period: June 01, 2022 – May 31, 2023
Total Budget: \$50,000
PI: Hadi Fekrmandi
- **Pending Award (white paper submitted): EXploring Promising Advances & Novel Decentralized (EXPAND) Approaches in Federated Learning for Advanced Intelligent Mechatronics (AIMs)**
Funding Source: South Dakota Board of Regions (SDBoR)
Grant Period: June 01, 2023 – April 01, 2024
Total Budget: \$90,000
PI: Hadi Fekrmandi, Kwanghee Won (Co-PI, SDSU)

Travel Grants

- **Attending NEEC Bi-annual Fest event at Naval Undersea Warfare Center at Newport, RI**
Funding Source: South Dakota Mines Mechanical Engineering
Grant Period: Jun 2022
Total Budget: \$1500
PI: Hadi Fekrmandi
- **Establishing partnership with Naval Undersea Warfare Center at Seattle, WA and demonstrating South Dakota Mines autonomous inspection robotic capabilities**
Funding Source: South Dakota Mines Office of Sponsored Programs / Start up
Grant Period: Aug 2019
Total Budget: \$700
PI: Hadi Fekrmandi
- **Establishing NASA MSFC partnership and participating at SmallSat 2019 conference Logan, UT.**
Funding Source: SD NASA EPSCoR / Start up
Grant Period: Aug 2019
Total Budget: \$1,600
PI: Hadi Fekrmandi
- **Initiating partnership with NASA Ames Research Center, San Joseh, CA & Naval Undersea Warfare Center, Seattle, WA**
Funding Source: SD NASA EPSCoR / Start up
Grant Period: Aug 2018
Total Budget: \$2,500
PI: Hadi Fekrmandi
- **Attending EPSCoR annual meeting at NASA Goddard Space Center, Greenbelt, MD**
Funding Source: SD NASA EPSCoR / Start up
Grant Period: June 2018
Total Budget: \$1,900
PI: Hadi Fekrmandi
- **Initiating partnership with NASA Kennedy Space Center, Orlando, FL**
Funding Source: SD NASA EPSCoR / Start up

Grant Period: May 2018
 Total Budget: \$1,200
 PI: Hadi Fekrmandi

RESEARCH EXPERIENCE

Assistant Professor 2017-present
Advanced Intelligent Mechatronics (AIM) Research Laboratory [\[Link\]](#) South Dakota Mines

- Precision Autonomous Farming through Integration of Energy Storage with Artificial Intelligence
- Distributed state estimation and control for dealing with network unreliability in multi-agent robotics
- ANN-EKF for sensor/actuator fault detection, identification and recovery (Simulink)
- Bio-inspired robotic crawler for automation of complex pipeline inspection and maintenance
- Vision-based localization for relative robotic guidance, navigation and control
- Low earth orbit modeling of CubeSat swarm in proximity formation flying mission (Python)

Post-Doc Research Associate 2015-2017
 Sensors and Robotics Research Laboratory, with Dr. Dwayne McDaniel, PE Applied Research Center

- Sensor technology development and instrumentation evaluation for DOE Hanford site
- Design and validation of miniature magnetic inspection robotic for nuclear waste tanks
- Nondestructive testing for pipeline integrity monitoring and corrosion and erosion evaluation
- 3D printing and rapid prototyping for iterative design improvements (Solid Works)
- Solid liquid interface monitoring via 2D/3D sonar image and data analysis and processing (MATLAB)

Research Assistant 2011-2015
 Mechatronics Research Laboratory with Dr. Ibrahim Nur Tansel Florida International University

- SuRE method for ultrasonic based structural health monitoring technique for plate-like structures
- Piezoelectric-based sensing/exciting of high frequency surface guided waves
- Embedded C programming for online data acquisition, signal processing, and damage detection/identification
- Laser vibrometry for non-contact loose bolt detection, particular application in robotic manipulators
- Data acquisition instrumentation for MEMS sensor mechanical characterization. (LabVIEW)
- Numerical modeling and frequency analysis of ultrasonic guided waves (COMSOL)

Research Assistant 2006-2009
 Modal analysis laboratory with Dr. Musa Rezaee

- Perturbation method for nonlinear dynamic analysis of a beam with a breathing crack
- Genetic algorithm for damage detection and localization

TEACHING EXPERIENCE

Table 1. South Dakota Mines Teaching Portfolio

Year	Course Title	Credit Hours	# Students
Spring 2022			
ME 683	Advanced Mechanical System Control	3	6
ME 479	Senior Design	3	6

Table 2. South Dakota Mines Teaching Portfolio

Year	Course Title	Credit Hours	# Students
EE/ CENG/ ME 351	Mechatronics and Measurement systems	3	41
EE/ CENG/ ME 351L	Mechatronics and Measurement systems	1×3	41
ME 352	Introduction to Dynamic System	3	20
Fall 2021			
ME 352	Introduction to Dynamic System	3	20
EE/ CENG/ ME 351	Mechatronics and Measurement systems	3	41
EE/ CENG/ ME 351L	Mechatronics and Measurement systems	1×3	41
ME 691	Independent Study	3	1
Summer 2021			
ME 788	Master's Research Problems and Project	3	1
Spring 2021			
ME 352	Introduction to Dynamic System	3	54
EE/ CENG/ ME 351	Mechatronics and Measurement systems	3	56
EE/ CENG/ ME 351L	Mechatronics and Measurement systems	1×3	56
ME 788	Master's Research Problems and Project	3	1
Fall 2020			
ME 352	Introduction to Dynamic System	3	40
EE/ CENG/ ME 351	Mechatronics and Measurement systems	3	38
EE/ CENG/ ME 351L	Mechatronics and Measurement systems	1×3	38
ME 479	Mechanical Systems Design II	2	2
Summer 2020			
ME 391	Independent Study	3	1
Spring 2020			
EE/ CENG/ ME 351	Mechatronics and Measurement systems	3	46
EE/ CENG/ ME 351L	Mechatronics and Measurement systems Lab	1×3	46
Fall 2019			
ME 352	Introduction to Dynamic System	3	42
EE/ CENG/ ME 351	Mechatronics and Measurement systems	3	36

Table 3. South Dakota Mines Teaching Portfolio–Continue

Year	Course Title	Credit Hours	# Students
EE/ CENG/ ME 351L	Mechatronics and Measurement systems Lab	1×3	36
EE 788	Master’s Research Prob/Project	3	1
Summer 2019			
ME 798	Thesis	3	1
Spring 2019			
ME 492	Topics: Prognostics and Health Management	3	17
EE/ CENG/ ME 351	Mechatronics and Measurement systems	3	51
EE/ CENG/ ME 351L	Mechatronics and Measurement systems Lab	1×3	51
ME 479	Mechanical Systems Design II	3	8
ME 592	Topics: Prognostics and Health Management	3	2
ME 591	Independent Study	3	1
ME 798	Thesis	3	1
Fall 2018			
EE/ CENG/ ME 351	Mechatronics and Measurement systems	3	59
EE/ CENG/ ME 351L	Mechatronics and Measurement systems Lab	1×3	59
ME 352	Introduction to Dynamic System	3	52
ME 798	Thesis	3	1
Spring 2018			
ME 479	Mechanical Systems Design II	2	10
ME 352	Introduction to Dynamic System	3	58
EE/CENG/ ME 264	Electromech Sys Dev / Design	2	62
EE/CENG/ ME 264L	Electromech Sys Dev Lab / Design	2	62
Fall 2017			
ME 352	Introduction to Dynamic System	3	45
EE/CENG/ ME 264	Electromech Sys Dev / Design	2	62
EE/CENG/ ME 264L	Electromech Sys Dev Lab / Design	2	62

ADVISING

Graduate Students

MD Niamul Quader

AI & Autonomous Systems Project

2021-present
Thesis Advisor

- Graduate Teaching Assistantship by ME Department, 2021-2022

Cagri Ozdemir

Deep Learning Project

2020-present
Thesis Committee

- Graduate Research Assistantship by CSE Department, 2020-Present

Alexander Frye

CubeSat Swarm Formation Flying Project

2019-2021
Thesis Committee

- Graduate Research Assistantship by ME Department, 2020-2021
- Graduate Teaching Assistantship by CSE Department, 2020-2021
- Graduate Teaching Assistantship by CSE Department, 2019-2020

Benjamin Calvin

Fault Identification & Risk Management (FIRM) Project

2019-2021
Non-Thesis

- L3Harris Technologies Fellowship Award, \$1000, 2019-2020
- Graduate Teaching Assistantship by ME Department, 2020-2021

Yunseok Gwon

Health Monitoring Project

2018-2019
Non-Thesis

- Ivanhoe fellowship award, \$3,850, 2018-2019
- Outstanding Graduate Student Award, April 18, 2019

Undergraduate Research Assistants

- Amanda Messagee (Computer Science & Engineering) Jan 2022
- Nolan Bernard (Computer Science & Engineering) Jan 2022
- Kyle Houchin (Mechanical Engineering) Aug 2021
- Erik Trujillo (Computer Science & Engineering) Aug 2021
- Morgan Tatge (Mechanical Engineering) Jan 2021
- Liam McEuen (Electrical Engineering) Aug 2020
- Skye-Rutan Bedard (Electrical Engineering) DOD SMART Scholarship Awardee 2019-2020
- Joseph Allen (Mechanical Engineering) 2019-2020
- Michael Yoon (Computer Science & Engineering) 2019-2020
- Walter Coombe (Mechanical Engineering) 2018-2019
- Phillip Hillard (Mechanical Engineering) 2018-2019
- Johny Hillard (Mechanical Engineering) 2017-2018

Senior Design Team Advisor

- SDSMT Moonrockers for NASA Lunabotics Competition (Co-Advisor) 2021-2022
- L3H Active Humidity Sensing and Control Device; Product Development (Major Advisor) 2020-2021
- L3H Algorithm Development for Robust SmallSat File Transfer (Major Advisor) 2019-2020
- L3H Active Humidity Sensing and Control Device; Mechanical Design (Major Advisor) 2018-2019
- NASA Flexible Wearable Health Monitoring Mechanical Systems Design (Co-Advisor) 2018-2019
- NASA Robotic Mining Competition Team (Co-Advisor) 2017-2018

Student Organization

- Advisor RoBoat Robotcs Club [\[Link\]](#) 2021-2022

SERVICE

Academic Service

- Planning for NSF Established Program to Stimulate Competitive Research (EPSCoR) proposal June 2022
- Served for NASA Lunar Surface Technology Research (LuSTR) proposal review panel Nov 2021
- Participated at online teaching 101 and prepared course online labs for transition to online Aug 2020
- Prepared promotional video to encourage prospective applicants during the pandemic Jun 2020
- Supported South Dakota Mines to design and prototype masks for local healthcare providers Mar 2020
- Served as judge for NASA NESSP's ANGLEs robotic challenge, East Middle School July 2019
- Served as judge for SD Mines Research Symposium 2018-present
- Established and promoted a partnership with L3Harris, major student recruiter & donor 2018-present
- Prepared AIM Lab for robot lives demo, poster, video and students presentation 2017-present
- Contributed to GoToMines by numerous lab tours for prospective students and parents 2017-present
- Promoted new graduate student recruiting efforts through research website and interviews 2017-present
- Has consistently provided academic advising for average about 50 students per semester 2017-present
- Supported the faculty hire search committee and provided feedback to candidate presentations 2017-present
- Advising and supporting VEX U Robotics team 2017-present
- Provided input to graduate applicant screening committee in the control and robotics domain 2017-2020

Workshops and Training

- *Mapping, Analysis, and Field Data Collection with ArcGIS Pro* Jan 2022
Professional GIS Workshops offered by Department of Geology and Geological Engineering
- *Naval Applications of Machine Learning (NAML) workshop* Apr 2021
AFCEA San Diego Chapter
- *Implementing effective teaching methods in a virtual or online environment workshop* Aug 2020
National Effective Teaching Institute (NETI-3)
- *FY 20 cyber security and sensitive and classified information awareness Training* May 2020
National Aeronautics and Space Administration (NASA)
- *Introduction to Export Compliance* May 2020
Collaborative Institutional Training Initiative (CITI) Program
- *Family Educational Rights and Privacy Act (FERPA) for Higher Education* Sep 2019
South Dakota Mines, Skillsoft
- *Graduate Advising Workshop for Faculty* Sep 2019
South Dakota Mines, Dean of Graduate Education
- *Design and Implementation of Interactive Learning workshop* Aug 2019
Karl Smith, University of Minnesota
- *Cybersecurity Awareness Training* Apr 2018
South Dakota Mines, Information Technology Services (ITS)
- *Active Shooter Survival* Aug 2017
South Dakota Mines, Environmental Health and Safety (EHS)
- *Responsible Conduct of Research* June 2016
Collaborative Institutional Training Initiative (CITI) Program
- *Fire Safety, HAZCOM, HAZWOPER Awareness, and Laboratory Safety Certificates* May 2015
Florida International University, Environmental Health and Safety (EHS)

Seminars and Invited Speakers

- *A Framework for Risk Aware, Reliable, and Resilient Autonomous Systems using Artificial Intelligence and Machine Learning*, Invited speaker seminar series at L3Harris Sep 2021

- *Multi-agent Autonomous GN&C using SVGS for Lunar Surface Mobility Applications* Aug 2020
Invited speaker by control systems design and analysis (EV-41) division,
NASA Marshall Space Flight Center, Huntsville, AL, Virtual [\[Link\]](#)
- *Multi-agent Autonomous GN&C using SVGS for Lunar Surface Mobility Applications* Aug 2020
Invited speaker by control systems design and analysis (EV-41) division,
NASA Marshall Space Flight Center, Huntsville, AL, Virtual [\[Link\]](#)
- *Development of FIRM Intelligent Health Monitoring for UUVs using Machine Learning* Feb 2020
Presented poster at Workshop on Naval Applications of Machine Learning (NAML2020)
NIWC Pacific (Point Loma), San Diego, CA
- *Deep Learning and Bio-Inspiration for Development of Intelligent Mechatronics Systems* Feb 2019
Invited speaker by electrical and computer engineering (ECE) seminar series,
South Dakota Mines, Rapid City, SD
- *A review of CubeSat Swarm Formation Research at South Dakota Mines* Nov 2018
Invited speaker by NASA EPSCoR's Materials science and engineering (MSE) seminar series,
University of Wyoming, Laramie, WY

COLLABORATORS AND OTHER AFFILIATIONS

South Dakota Mines

- NSF IUCRC Center for Green Solid-State Electric Power Generation and Storage (CEPS) Rapid City, SD

Government agencies

- NASA Marshall Space Flight Center (MSFC) Huntsville, AL
- Naval Undersea Warfare Center (NUWC) Seattle, WA
- National Science Foundation (NSF) Washington, DC

Industry partners

- Raven Industries Sioux Falls, SD
- L3Harris Technologies, Communications West Salt Lake City, UT
- Boeing Research & Development St. Louis, MO
- Zoox Mountain View, CA

Academic collaborations

- Dr. Kwanghee Won, South Dakota State University (SDSU) Brookings, SD
- Dr. Randy Hoover, South Dakota Mines (SDSMT) Rapid City, SD

PUBLICATIONS

Journal Articles

- [J1] Y. Banadaki, N. Razaviarab, H. Fekrmandi, G. Li, P. Mensah, S. Bai, and S. Sharifi, "Automated quality and process control for additive manufacturing using deep convolutional neural networks," *Recent Progress in Materials*, vol. 4, no. 1, pp. 1–1, 2022. Available: <http://dx.doi.org/10.21926/rpm.2201005>
- [J2] B. Dadashzadeh, A. Allahverdizadeh, M. Esmacili, and H. Fekrmandi, "A case study on influence of utilizing hill-type muscles on mechanical efficiency of biped running gait," *International Applied Mechanics*, vol. 56, no. 4, pp. 1–10, 2020. Available: <https://doi.org/10.1007/s10778-020-01033-7>
- [J3] B. Dadashzadeh and H. Fekrmandi, "Tracking of maximum electrical power for a piezoelectric energy harvesting system," *International Journal of Recent Technology and Engineering*, vol. 8, no. 3, pp. 6465–6469, 2019. Available: <https://www.doi.org/10.35940/ijrte.B3492.098319>

- [J4] W. Lin, Y. Rotenberg, H. Fekrmandi, and C. Levy, “Buckypaper/dyad/buckypaper and buckypaper/dyad/(polyaniline/multiwalled carbon nanotube) composite sensors: Preparation and damping properties characterization,” *Journal of Composite Materials*, vol. 52, no. 11, pp. 1457–1464, 2018. Available: <https://doi.org/10.1177/0021998317725160>
- [J5] W. Lin, Y. Rotenberg, K. P. Ward, H. Fekrmandi, and C. Levy, “Polyaniline/multi-walled carbon nanotube composites for structural vibration damping and strain sensing,” *Journal of Materials Research*, vol. 32, no. 1, pp. 73–83, 2017. Available: <https://doi.org/10.1557/jmr.2016.361>
- [J6] A. Baghalian, S. Tashakori, V. Y. Senyurek, D. McDaniel, H. Fekrmandi, and I. N. Tansel, “Non-contact quantification of longitudinal and circumferential defects in pipes using the surface response to excitation (sure) method,” *International Journal of Prognostics and Health Management*, vol. 8, no. 2, pp. 1–8, 2017. Available: <http://www.phmsociety.org/node/2429>
- [J7] S. Tashakori, A. Baghalian, M. Unal, H. Fekrmandi, D. McDaniel, I. N. Tansel, *et al.*, “Contact and non-contact approaches in load monitoring applications using surface response to excitation method,” *Measurement*, vol. 89, pp. 197–203, 2016. Available: <https://doi.org/10.1016/j.measurement.2016.04.013>
- [J8] H. Fekrmandi, M. Unal, A. Baghalian, S. Tashakori, K. Oyola, A. Alsenawi, and I. N. Tansel, “A non-contact method for part-based process performance monitoring in end milling operations,” *The International Journal of Advanced Manufacturing Technology*, vol. 83, no. 1-4, pp. 13–20, 2016. Available: <https://doi.org/10.1007/s00170-015-7523-2>
- [J9] H. Fekrmandi, M. Unal, S. R. Neva, I. N. Tansel, and D. McDaniel, “A novel approach for classification of loads on plate structures using artificial neural networks,” *Measurement*, vol. 82, pp. 37–45, 2016. Available: <https://doi.org/10.1016/j.measurement.2015.12.027>
- [J10] H. Fekrmandi, J. Rojas, I. N. Tansel, A. Yapici, and B. Uragun, “Investigation of the computational efficiency and validity of the surface response to excitation method,” *Measurement*, vol. 62, pp. 33–40, 2015. Available: <https://doi.org/10.1016/j.measurement.2014.10.053>
- [J11] W. Lin, Y. Rotenberg, H. Fekrmandi, K. Ward, and C. Levy, “Multifunctional materials of polyurethane/buckypaper for structural vibration damping and strain sensing,” *International Journal of Innovative Research in Science, Engineering and Technology (IJIRSET)*, vol. 4, no. 12, pp. 12 531–12 544, 2015. Available: http://www.ijirset.com/upload/2015/december/150_40_Multifunctional.pdf
- [J12] H. Fekrmandi, J. Rojas, J. Campbell, I. N. Tansel, B. Kaya, and S. Taskin, “Inspection of the integrity of a multi-bolt robotic arm using a scanning laser vibrometer and implementing the surface response to excitation method (sure),” *International Journal of Prognostics and Health Management*, vol. 5, no. 1, pp. 1–10, 2014. Available: <http://www.phmsociety.org/node/1149>
- [J13] M. Rezaee and H. Fekrmandi, “Analysis of the nonlinear behavior of the free vibration of a cantilever beam with a fatigue crack using lindstedt-poincare’s method,” *Amirkabir Journal of Mechanical Engineering*, vol. 46, no. 2, pp. 29–31, 2014.
- [J14] M. Rezaee and H. Fekrmandi, “A theoretical and experimental investigation on free vibration behavior of a cantilever beam with a breathing crack,” *Shock and Vibration*, vol. 19, no. 2, pp. 175–186, 2012. Available: <https://doi.org/10.3233/SAV-2011-0622>

Conference Papers

- [C1] H. Fekrmandi, A. J. Frye, A. Tamjidi, J. Rakoczy, and R. C. Hoover, “Autonomous multi-agent systems using svgs camera sensor for lunar surface mobility applications,” in *2021 IEEE Aerospace Conference (50100)*, IEEE. IEEE, 2021, pp. 1–10. Available: <https://doi.org/10.1109/AERO50100.2021.9438414>

- [C2] H. Fekrmandi, S. Rutan-Bedard, A. Frye, and R. Hoover, *Validation of Vision-Based State Estimation for Localization of Agents and Swarm Formation*, ser. Mechanisms and Machine Science, vol. 83. Springer, 2020. Available: https://doi.org/10.1007/978-3-030-43929-3_20
- [C3] J. Allen, S. Rutan-Bedard, and H. Fekrmandi, *Robotic Inspection Crawler for Small Diameter Complex Piping*, ser. Mechanisms and Machine Science, vol. 83. Springer, 2020. Available: https://doi.org/10.1007/978-3-030-43929-3_26
- [C4] H. Fekrmandi and P. Hillard, “A pipe-crawling robot using bio-inspired peristaltic locomotion and modular actuated non-destructive evaluation mechanism,” in *Bioinspiration, Biomimetics, and Bioreplication IX*, vol. 10965. International Society for Optics and Photonics, 2019, p. 1096508. Available: <https://doi.org/10.1117/12.2515433>
- [C5] H. Fekrmandi and Y. Gwon, “Reliability of surface response to excitation method for data-driven prognostics using gaussian process regression,” in *Health Monitoring of Structural and Biological Systems XII*, vol. 10600. International Society for Optics and Photonics, 2018, p. 106002R. Available: <https://doi.org/10.1117/12.2304475>
- [C6] Y. Gwon and H. Fekrmandi, “A data-driven approach of load monitoring on laminated composite plates using support vector machine,” in *Smart Structures and NDE for Industry 4.0*, vol. 10602. International Society for Optics and Photonics, 2018, p. 1060206. Available: <https://doi.org/10.1117/12.2305840>
- [C7] S. Tashakori, A. Baghalian, M. Unal, V. Senyurek, H. Fekrmandi, D. McDaniel, and I. Tansel, “Load monitoring using surface response to excitation method,” in *Mechanics of Composite and Multi-functional Materials, Volume 7*. Springer, 2017, pp. 209–214. Available: https://doi.org/10.1007/978-3-319-41766-0_25
- [C8] A. Baghalian, S. Tahakori, H. Fekrmandi, M. Unal, V. Senyurek, D. McDaniel, and I. Tansel, “Implementation of the surface response to excitation method for pipes,” in *Mechanics of Composite and Multi-functional Materials, Volume 7*. Springer, 2017, pp. 261–266. Available: https://doi.org/10.1007/978-3-319-41766-0_31
- [C9] H. Fekrmandi, I. N. Tansel, R. Gonzalez, S. Rojas, D. Meiller, K. Lindsay, A. Baghalian, and S. Tashakori, “Implementation of the surface response to excitation (sure) method with dsp’s for detection of the damage of thick blocks,” in *10th International Workshop on Structural Health Monitoring*, vol. 2, 2015. Available: <https://doi.org/10.12783/SHM2015/233>
- [C10] H. Fekrmandi, R. Gonzalez, S. Rojas, I. N. Tansel, D. Meiller, and K. Lindsay, “Automation of the interpretation of surface response to excitation (sure) method by using neural networks,” in *2015 7th International Conference on Recent Advances in Space Technologies (RAST)*. IEEE, 2015, pp. 11–16. Available: <https://doi.org/10.1109/RAST.2015.7208307>
- [C11] M. Rezaee and H. Fekrmandi, “Analysis of free nonlinear vibration behavior for curved embedded carbon nanotubes on elastic foundation,” in *ASME 2010 10th Biennial Conference on Engineering Systems Design and Analysis*. American Society of Mechanical Engineers Digital Collection, 2010, pp. 615–621. Available: <https://doi.org/10.1115/ESDA2010-24592>

Presentations

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