

# CURRICULUM VITAE

**Hadi Fekrmandi, PhD, PE**

South Dakota School of Mines and Technology

Department of Mechanical Engineering

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## EDUCATION

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

## PROFESSIONAL EXPERIENCE

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

## RESEARCH INTERESTS

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Control, Robotics and Autonomous Systems  
Artificial Intelligence in Electro-Mechanical Systems  
Multi-Agent Systems  
Vision-based Guidance, Navigation and Control  
Control Applications in Remote to Access Domains (space, aerial, ground and undersea)

## PROFESSIONAL ORGANIZATION MEMBERSHIPS

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Golden Key International Honor Society (GK)	Lifetime Member
International Society for Optics and Photonics (SPIE)	Lifetime Member
American Society of Mechanical Engineers (ASME)	Member since 2010
Institute of Electrical and Electronics Engineers (IEEE)	Member since 2018
Professional Certificate in Robotics Engineering Professional Engineer	Florida International University <b>State of California</b>
Organization Committee Member, FCRAR Conference	Since 2014
Organization Committee Member, SPIE Conference on Smart Structures	Since 2018
Reviewer for Elsevier's Measurement, and MDPI's Robotics journals	2014-Present
Reviewer for Springer's Mechanisms and Machine Science book series	Vol. 83, 2020

## HONORS

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Faculty Summer Research Fellowship	NASA Marshall Space Flight Center 2020
Post-Doctoral Fellowship	US Department of Energy, ARC 2015-2016
Outstanding 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 013

## MEDIA APPEARANCES

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ME Department Newsletter: <a href="#">New research awards and publications from 2018-2019</a>	Dec 20, 2019
South Dakota Public Broadcasting Radio (SDPB): <a href="#">Innovation: CubeSat</a>	Aug 23, 2019
NBC Local News TV (Newscenter1): <a href="#">Space exploration research ongoing at SD Mines</a>	July 19, 2019
South Dakota Mines Research: <a href="#">Mines Team Works on CubeSat Swarm</a>	Sep 3, 2019
South Dakota EPSCoR Portal: <a href="#">SD Mines Team Pushes to Put CubeSat Swarm in Space</a>	Sep 1, 2019

## RESEARCH AWARDS

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### Active Research Grants

- **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): Autonomous robotic GN&C using SVGS sensor for lunar surface mobility applications**

Funding Source: NASA Collaborative Agreement Notice (CAN)

Grant Period: April 01, 2021 – April 01, 2022

Total Budget: \$180,000

PI: Hadi Fekrmandi, John Rakoczy (Co-PI, NASA MSFC)

- **Pending Award (white paper submitted): Team Resilience and Intelligent Maneuvering (TRIM) for Navy's fleet of Unmanned Underwater Vehicles (UUVs)**

Funding Source: Office of Naval Research (ONR)

Grant Period: June 01, 2021 – May 31, 2024

Total Budget: \$405,000

PI: Hadi Fekrmandi, Thai Tran (Co-PI, NUWS Keyport)

- **Pending Award (white paper submitted): Autonomous Guidance, Navigation and (SLIM) for cooperative multi-robot autonomous missions on the Moon**

Funding Source: SD NASA EPSCoR / Start up

Grant Period: April 01, 2021 – September 31, 2024

Total Budget: \$ 1,000,000 (\$ 750,000 NASA, \$375,000 match).

PI: Hadi Fekrmandi, Randy Hoover (Co-PI), Kwanghee Won (Co-PI, SDSU)

## Travel Grants

- **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**

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

- 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**

**Assistant Professor**

Aug 2017-Present

Department of Mechanical Engineering

South Dakota Mines

**Table 1.** South Dakota Mines Teaching Portfolio

Year	Course Title	Credit Hours	# Students
<b>Fall 2020</b>			
ME 352	Introduction to Dynamic System	3	40
EE/CENG/ ME 351 and Lab	Mechatronics and Measurement systems	3	38
EE/CENG/ ME 351 Lab	Mechatronics and Measurement systems	1	38
ME 479	Mechanical Systems Design II	2	2
<b>Summer 2020</b>			
ME 391	Independent Study	3	1
<b>Spring 2020</b>			
EE/CENG/ ME 351	Mechatronics and Measurement systems	3	46
EE/CENG/ ME 351L	Mechatronics and Measurement systems Lab	1	46
<b>Fall 2019</b>			
ME 352	Introduction to Dynamic System	3	42
EE/CENG/ ME 351	Mechatronics and Measurement systems	3	36
EE/CENG/ ME 351L	Mechatronics and Measurement systems Lab	1	36

**Table 2.** South Dakota Mines Teaching Portfolio–Continue

<b>Year</b>	<b>Course Title</b>	<b>Credit Hours</b>	<b># Students</b>
EE 788	Master's Research Prob/Project	3	1
<b>Summer 2019</b>			
ME 798	Thesis	3	1
<b>Spring 2019</b>			
ME 492	Topics: Prognostics and Health Management	3	17
EE/CENG/ ME 351	Mechatronics and Mea- surement systems	3	51
EE/CENG/ ME 351L	Mechatronics and Mea- surement systems Lab	1	51
ME 479	Mechanical Systems De- sign II	3	8
ME 592	Topics: Prognostics and Health Management	3	2
ME 591	Independent Study	3	1
ME 798	Thesis	3	1
<b>Fall 2018</b>			
EE/CENG/ ME 351	Mechatronics and Mea- surement systems	3	59
EE/CENG/ ME 351L	Mechatronics and Mea- surement systems Lab	1	59
ME 352	Introduction to Dynamic System	3	52
ME 798	Thesis	3	1
<b>Spring 2018</b>			
ME 479	Mechanical Systems De- sign 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
<b>Fall 2017</b>			
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

## MENTORING

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### Graduate Students

#### **Cagri Ozdemir**

Deep Learning Project

2020-present  
Thesis Committee

- Graduate Research Assistantship by CSE Department, 2020-2021

#### **Alexander Frye**

CubeSat Swarm / FIRM Projects

2019-present  
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**

SLIM Project

2019-present  
Non-Thesis

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

#### **Yunseok Gwon**

Health Monitoring Project

2017-2019  
Thesis Committee, Chair

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

### Undergraduate Research Assistants

- Morgan Tatge (Mechanical Engineering) Jan 2020
- Liam McEuen (Electrical Engineering) Aug 2020
- Skye-Rutan Bedard (Electrical Engineering) DOD SMART Scholarship Award 2019-2020
- Joseph Allen (Mechanical Engineering) 2019-2020
- Michael Yoon (Computer Science and Engineering) 2019-2020
- Walter Coombe (Mechanical Engineering) 2018-2019
- Phillip Hillard (Mechanical Engineering) 2018-2019
- John Hillard (Mechanical Engineering) 2017-2018

### Senior Design Team Advisor

- 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

## SERVICE

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### South Dakota Mines Service

- 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 Undergraduate 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 2018-present

### **Workshops and Training**

- *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**

- *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 [Also in [Sout Dakota Mines ME Seminar Series](#)]
- *Development of F.I.R.M. 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**

According to the news-letter by South Dakota Mines Department of Mechanical Engineering, Dr. Hadi Fekrmandi is one of the faculty leading the research projects with a focus on collaborations with federal agencies and research centers, state universities, and private industry:

### **Government agencies**



- NASA Marshall Space Flight Center (MSFC), Huntsville, AL
- NASA, Ames Research Center (ARC), Mountain View, CA
- Naval Undersea Warfare Center (NUWC), Keyport, WA
- Naval Research Laboratory, Washington, DC

#### **Industry partners**

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

#### **Academic collaborations**

- South Dakota State University (SDSU)
- Florida Atlantic University (FAU)

Dr. Kwanghee Won

Dr. Zhen Ni

## **PUBLICATIONS**

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### **Patents**

- [P1] H. Fekrmandi, P. Hillard, and S. Rutan-Bedard, “Modular robotic crawler with hybrid locomotion for inspection of small diameter pipe,” May 20 2021, US Patent App. 16/953,237. Available: <https://patentimages.storage.googleapis.com/03/f7/75/63e6e01390fe12/US20210148503A1.pdf>

### **Journal Articles**

- [J1] Y. Banadaki, N. Razaviarab, H. Fekrmandi, and S. Sharifi, “Toward enabling a reliable quality monitoring system for additive manufacturing process using deep convolutional neural networks,” *Production Manufacturing Research*, 2020, **in-review**.
- [J2] B. Dadashzadeh, A. Allahverdizadeh, M. Esmaeili, 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](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](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](https://doi.org/10.1007/978-3-030-43929-3_26)
- [C4] A. Frye, H. Fekrmandi, R. C. Hoover, and A. H. Tamjidi, “Validation of distributed state estimation for localization of small satellites and swarm formation,” in *33rd Florida Conference on Recent Advances in Robotics*, 2020, pp. 35–39. Available: <https://fcrar2020.fit.edu/proceedings.pdf>
- [C5] 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>
- [C6] H. Fekrmandi, S. Rutan-bedard, A. Frye, M. Yoon, and R. Hoover, “Vision-based guidance and navigation for swarm of small satellites in a formation flying mission,” in *32nd Florida Conference on Recent Advances in Robotics*, 2019.

- [C7] H. Fekrmandi, “Autonomous inspection and maintenance (aim) crawler for nondestructive testing and evaluation of cu-ni piping system in highly corrosive environments,” in *32nd Florida Conference on Recent Advances in Robotics*, 2019.
- [C8] 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>
- [C9] 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>
- [C10] H. Fekrmandi, J. Hillard, and W. Staib, “Design of a bio-inspired crawler for autonomous pipe inspection and repair using high pressure cold spray,” in *31st Florida Conference on Recent Advances in Robotics*, 2018, pp. 97–102.
- [C11] 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](https://doi.org/10.1007/978-3-319-41766-0_25)
- [C12] 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](https://doi.org/10.1007/978-3-319-41766-0_31)
- [C13] H. Fekrmandi, R. Sheffield, M. DiBono, and D. McDaniel, “Validation of the miniature inspection tool for the ay102 double-shell tank at the hanford doe site,” in *29th Florida Conference on Recent Advances in Robotics*, 2016.
- [C14] H. Fekrmandi, R. Sheffield, M. DiBono, and D. McDaniel, “Development of a miniature inspection tool for the ay-102 double-shell tank at the hanford doe site,” in *ANS Decommissioning and Remote Systems 2016 Conference*, 2016.
- [C15] A. Abrahao, H. Fekrmandi, E. Gokce, R. Sheffield, and D. McDaniel, “Development of inspection tools for the ay-102 double-shell tank at the hanford doe site-16383,” in *WM Symposia*, 2016.
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