

CURRICULUM VITAE

University of Idaho

NAME: Johnny(Liujun) Li

DATE: Aug 15, 2022

RANK OR TITLE: Assistant Professor

DEPARTMENT: Soil and Water Systems

OFFICE LOCATION AND CAMPUS ZIP:

James Martin Building(Agricultural Engineering Building) 81A
Department of Soil and Water Systems
University of Idaho
875 Perimeter Drive 2060 MS Moscow, ID 83844-2060

OFFICE PHONE: 208-885-1015

FAX:

EMAIL: liujunl@uidaho.edu

WEB: [https://www.uidaho.edu/cals/soil-](https://www.uidaho.edu/cals/soil-and-water-systems/our-people/johnny-li)

[and-water-systems/our-people/johnny-li](https://www.uidaho.edu/cals/soil-and-water-systems/our-people/johnny-li)

DATE OF FIRST EMPLOYMENT AT UI: August 15, 2022

DATE OF TENURE: untenured

DATE OF PRESENT RANK OR TITLE: August 15, 2022

EDUCATION BEYOND HIGH SCHOOL:

- 2012 **Ph.D.** in Mechanical Engineering, Central South University (CSU), Changsha, Hunan, China
Foci: Electrohydraulic system design, modeling and control, mechatronics, modern control theory
Dissertation: *Design theory of active heave compensation system of deep-sea mining based on dynamic vibration absorber and its control strategy*
- 2005 **M.S.** of Materials Engineering, Central South University (CSU), Changsha, Hunan, China
Foci: materials fabrication, thermal kinematics, flow behavior and process control,
Dissertation: *Study on Metal Injection Molding of large complex parts*
- 2002 **B.S.** of Automation, Hunan Agricultural University, Changsha, Hunan, China
Foci: Agricultural mechanization and automation

EXPERIENCE:

Teaching, Extension and Research Appointments:

- 2022- Assistant Professor in Precision Agriculture, Department of Soil and Water System, University of Idaho, Moscow, ID
- 2021-2022 Associate Research Professor, Center for Intelligent Infrastructure and High-Performance Computing Research Center & Department of Civil, Architectural and Environmental Engineering, Missouri University of Science and Technology, Rolla, MO
- 2017-2018 Postdoctoral Researcher Associate, at Bio-sensing and Instrumentation Laboratory and Phenomics and Plant Robotics Center (P2RC), University of Georgia, Athens, GA
- 2016-2017 Postdoctoral Researcher Associate, Institute of Genomic Biology, University of Illinois at Urbana-Champaign, Urbana, IL
- 2015-2016 Postdoctoral Researcher Associate, CyberGIS Center for Advanced Digital and Spatial Studies, National Center for Supercomputing Applications/Illinois Agricultural Remote Sensing Laboratory, University of Illinois at Urbana-Champaign, Urbana, IL
- 2013-2014 Postdoctoral Researcher Associate, National Soybean Research Center/Illinois Agricultural Remote Sensing Laboratory, University of Illinois at Urbana-Champaign, Urbana, IL
- 2012-2013 Postdoctoral Researcher Associate, Energy Bioscience Institute / Illinois Agricultural Remote Sensing Laboratory, University of Illinois at Urbana-Champaign, Urbana, IL
- 2009-2010 Research Fellow, State Key Laboratory of Mechanical System and Vibration, Shanghai Jiaotong University, China (Top 200 World University), Shanghai, China
- 2007-2012 Joint Doctoral Research Fellow, State Key Laboratory of High-Performance Complex Manufacturing, School of Mechanical & Electrical Engineering, State Key Laboratory of Deep-Sea Mineral Resources Development and Utilization Technology, Central South University, Changsha,

Hunan, China
 2002-2005 Research Assistant, National Engineering Center of Powder Metallurgy, Central South University, Changsha, Hunan, China

Non-Academic Employment including Armed Forces:

2018-2020 Director of Engineering, Hitron Technologies Inc., Lexington, KY
 2006-2012 Product Engineer, ZOOMLION Heavy Industry, Changsha, China
 2002-2005 Production Engineer, Hunan Injection High Technology Co. Ltd., Changsha, China

TEACHING ACCOMPLISHMENTS:

Areas of Specialization: Agricultural robotics, Mechatronics, Remote sensing, Machine Learning, High-performance Computing, Precision agriculture

Courses Taught: (title, course number, date(s))

ASM112 Introduction to Agricultural Systems Management (3 cr.), 2022 Fall
 ASM 305 Introduction to Precision Agriculture (3 cr.), 2022 Fall
 ASM 475 Drones for Remote Sensing Applications (3 cr.), 2023 Spring
 080811Z10 Mechatronics System Design (2.5 cr.) 2010,2011, 2012 Fall, CSU

Students Advised:

Undergraduate Students:

Alvarado, Maria, Architectural & Civil Engineering, Missouri S&T, June 2022

Graduate Students:

Javier Hipólito Navas, M.S. in Civil Engineering, Missouri S&T, June 2022

Materials Developed:

TSM499 ArcGIS online module: Precision Agriculture Module for ABE students at University of Illinois at Urbana-Champaign

Courses Developed:

ASM240 Computer Applications in Biological Systems(3), 2023 Spring
 ASM462 Electrical Power Systems (3), 2024 Spring
 080811Z10 Mechatronics System Design (2.5 cr.) 2010 Fall

Non-credit Classes, Workshops, Seminars, Invited Lectures, etc.:

Invited speaker, University of Idaho, October 2022, ‘Advance Robotics Sensing, Control and Computing For Sustainable Agriculture and Infrastructural and Manufacturing Management’, Computer Science Department (Coeur d’Alene) Seminar Series.

Invited lecture, University of Idaho, September 2022, ‘Smart sensor, control and computing for precision crop and water management’, Hydrology 501 WR/IWRRRI seminar series.

Invited lecture, University of Idaho, October 2022, ‘Robotics and Remote Sensing in Agriculture’, Agricultural Systems Management 112.

Invited lecture, University of Illinois at Urbana-Champaign, September 2015, ‘Operational Amplifiers (OpAmps)’, Introduction to Electronics and Circuit.

Invited lecture, University of Illinois at Urbana-Champaign, October 2016, ‘Crop sensing and High-throughput Phenotyping data analysis technologies’, IB 542 Environmental Plant Physiology.

Invited lecture, Missouri University of Science and Technology, 2021 Spring, ‘Dynamic Vibration Absorber and vibration active control’, CIV-ENG 6205-Structural Dynamics-SP2021.

SCHOLARSHIP ACCOMPLISHMENTS:

Publications, Exhibitions, Performances, Recitals:

Refereed/Adjudicated:

L Li, L Tian, and T Ahamed. Engineering and Science of Biomass Feedstock Production and Provision: Preharvest Monitoring of Biomass Production. Springer, New York, 2014. p61-83.

L Li, Y Li. Theory and Application of Metal Injection Molding: Metal Injection Molding Equipment, Central

South University Press, 2006

Peer Reviewed/Evaluated:

- R Yang, T Liao, P Zhao, W Zhou, M He, L Li. Identification of citrus diseases based on AMSR and MF-RANet. *Plant Methods* 18, 113 (2022). <https://doi.org/10.1186/s13007-022-00945-4>
- X Liu, Y Hu, G Zhou, W Cai, M He, J Zhan, Y Hu, L Li. DS-MENet for the classification of citrus disease. *Frontiers in Plant Science*. 13. 884464. 10.3389/fpls.2022.884464
- L Zhang, G Zhou, C Lu, A Chen, Y Wang, L Li, W Cai. MMDGAN: A fusion data augmentation method for tomato-leaf disease identification. *Applied Soft Computing*. 123. 108969. 10.1016/j.asoc.2022.108969
- J He, T Liu, L Li, Y Hu, G Zhou. MFaster R-CNN for Maize Leaf Diseases Detection Based on Machine Vision. *Arab J Sci Eng* (2022). <https://doi.org/10.1007/s13369-022-06851-0>
- J Zhan, Y Hu, G Zhou, Y Wang, W Cai, L Li. A high-precision forest fire smoke detection approach based on ARGNet. *Computers and Electronics in Agriculture*. 196. 106874. 10.1016/j.compag.2022.106874.
- J Li, G Zhou, A Chen, C Lu, L Li. BCMNet: Cross-Layer Extraction Structure and Multiscale Downsampling Network With Bidirectional Transpose FPN for Fast Detection of Wildfire Smoke. *IEEE Systems Journal*, 2022, doi: 10.1109/JSYST.2022.3193951
- Y Hu, J Zhan, G Zhou, A Chen, W Cai, K Guo, Y Hu, L Li. Fast forest fire smoke detection using MVMNet. *Knowledge-Based Systems*. 241. 108219. 10.1016/j.knosys.2022.108219.
- Z Li, R Yang, W Cai, Y Xue, Y Hu, L Li. LLAM-MDCNet for Detecting Remote Sensing Images of Dead Tree Clusters. *Remote Sensing*. 2022; 14(15):3684. <https://doi.org/10.3390/rs14153684>
- Y Liu, Y Hu, W Cai, G Zhou, J Zhan, L Li. DCCAM-MRNet: Mixed Residual Connection Network with Dilated Convolution and Coordinate Attention Mechanism for Tomato Disease Identification. *Computational Intelligence and Neuroscience*. 2022. 1-15. 10.1155/2022/4848425.
- T Liu, L Zhang, G Zhou, W Cai, C Cai, L Li. BC-DUnet-based segmentation of fine cracks in bridges under a complex background. *PLOS ONE* 17(3): e0265258. <https://doi.org/10.1371/journal.pone.0265258>
- M Li, G Zhou, W Cai, J Li, M Li, M He, Y Hu, L Li. Multi-scale sparse network with cross-attention mechanism for image-based butterflies fine-grained classification. *Applied Soft Computing*. 117. 108419. 10.1016/j.asoc.2022.108419.
- T Liao, R Yang, P Zhao, W Zhou, M He, L Li. MDAM-DRNet: Dual Channel Residual Network With Multi-Directional Attention Mechanism in Strawberry Leaf Diseases Detection. *Frontiers in Plant Science*. 13. 869524. 10.3389/fpls.2022.869524.
- J Suo, J Zhan, G Zhou, A Chen, Y Hu, W Huang, W Cai, Y Hu, L Li. CASM-AMFMNet: A Network Based on Coordinate Attention Shuffle Mechanism and Asymmetric Multi-Scale Fusion Module for Classification of Grape Leaf Diseases. *Frontiers in Plant Science*. 13. 846767. 10.3389/fpls.2022.846767.
- M Li, G Zhou, W Cai, J Li, M Li, M He, Y Hu, L Li. MRDA-MGFSNet: Network Based on a Multi-Rate Dilated Attention Mechanism and Multi-Granularity Feature Sharer for Image-Based Butterflies Fine-Grained Classification. *Symmetry*. 13. 1351. 10.3390/sym13081351.
- Y Liu, K Tang, W Cai, A Chen, G Zhou, L Li, R Liu. MPC-STANet: Alzheimer's Disease Recognition Method Based on Multiple Phantom Convolution and Spatial Transformation Attention Mechanism. *Frontiers in Aging Neuroscience*. 14. 10.3389/fnagi.2022.918462.
- X Yuan, D Tanksley, P Jiao, L Li, G Chen, D Wunsch. Encoding Time-Series Ground Motions as Images for Convolutional Neural Networks-Based Seismic Damage Evaluation. *Frontiers in Built Environment*. 10.3389/fbuil.2021.660103.
- X Yuan, D Tanksley, L Li, H Zhang, G Chen, D Wunsch. Faster Post-Earthquake Damage Assessment Based on 1D Convolutional Neural Networks. *Applied Sciences*. 11. 9844. 10.3390/app11219844.
- X Yuan, G Chen, P Jiao, L Li, J Han, H Zhang. A neural network-based multivariate seismic classifier for simultaneous post-earthquake fragility estimation and damage classification. *Engineering Structures*. 225. 10.1016/j.engstruct.2022.113918.
- H Zhu, H Li, A Adam, L Li, L Tian. (2021). Performance evaluation of a multi-rotor unmanned agricultural aircraft system for chemical application. *International Journal of Agricultural and Biological Engineering*. 14. 43-52. 10.25165/j.ijabe.20211404.6194.
- N Yu, L Li, N Schmitz, LF Tian, JA Greenberg, BW Diers. Development of methods to improve soybean yield estimation and predict plant maturity with an unmanned aerial vehicle-based platform. *Remote Sensing of Environment*. 187. 10.1016/j.rse.2016.10.005.
- L Li, Y Fan, X Huang, L Tian. Real-time UAV weed scout for selective weed control by adaptive robust control and machine learning algorithm. *Proceedings of the American Society of Agricultural and Biological Engineers (ASABE)*, 2016, pp 2-10. doi:10.13031/aim.20162462667
- L Li, L Tian, Y Zhao, D Jiang, K Ting. Near-real-time Remote Sensing and Yield Monitoring of Biomass Crops.

- Precision Agriculture 2014: pp 201-215
- L Li, L Tian, D Jiang, R Campos, Q Gao, Y Fan. Unmanned aerial vehicle based remote sensing system for soybean high-throughput phenotyping. Proceedings of Automation Technology for Off-road Equipment, 2014: pp 1-10
- L Li, L Tian, D Jiang, C Yu, B Diers, R Campos, Z Lu, C Bonin. Field-based High-throughput phenotyping approach for soybean plant improvement. Precision Agriculture 2014: pp 675-690
- D Jiang, L Tian, L Yang, F Gao, L Li. Development of a 3D ego-motion estimation system for an autonomous agricultural vehicle, Biosystems Engineering, 2014,121: pp 150-159. DOI: 10.1016/j.biosystemseng.2014.02.016
- Q Gao, F Gao, L Tian, L Li, N Ding, G Xua, D Jiang. Design and development of a variable ground clearance, variable wheel track self-leveling hillside vehicle power chassis (V2-HVPC). Journal of Terramechanics.2014, 56: pp 77-90. DOI: 10.1016/j.jterra.2014.09.002
- X Huang, F Gao, G Xu, N Ding, L Li. Lane detection and reconstruction system design and completion for intelligent vehicle combined Bézier curve and extended search. Int J Adv Robot Syst, 2015, 12:132, pp 1-12. doi: 10.5772/61230
- D Jiang, L Tian, C Liu, and L Li. Development of a Portable Droplet Size Measurement System. Proceedings of ILASS-Americas 25th Annual Conference on Liquid Atomization and Spray Systems, 2013: pp 1-7
- S Liu, F Zeng, L Li. Control Performance Simulation Research on Heave Compensation System Based on Dynamic Vibration Absorber. Control Engineering of China, 2011, 18(3): pp 356-360
- L Li, S Liu. Study on Active heave compensation system of Deep-sea mining based on Dynamic Vibration Absorber and its feedback control. Proceedings of the 9th ISOPE Ocean Mining Symposium. 2011: pp 124-130
- X Zhang, S Liu, F Zeng, L Li. Simulation research on the semi-active heave compensation system based on H_∞ robust control. Proceeding of International Conference on Intelligent System Design and Engineering Application. 2010, 2: pp 378-382. DOI: 10.1109/ISDEA.2010.192
- L Li, S Liu, J Zuo. Parameter Design of Heave Compensation System of Deep-sea Mining based on Dynamic Vibration Absorber and its Experimental Study. Applied Mechanics and Materials, 2010, 34: pp 1999-2005. DOI: 10.4028/www.scientific.net/AMM.34-35.1999
- L Li, S Liu. Modeling of Active Heave Compensation System of Deep-sea Mining based on Dynamic Vibration Absorber and its H_∞ Robust Control, Proceeding of International Conference on Computer, Mechatronics, Control and Electronic Engineering (CMCE 2010). 2010, 2: pp 633-638, DOI: 10.1109/CMCE.2010.5610448
- S Liu, L Li and F Zeng. Control Performance Simulation on Heave Compensation System of Deep-sea Mining Based on Dynamic Vibration Absorber. Proceeding of International Conference on Digital Manufacturing & Automation, 2010: pp 441-446 doi: 10.1109/ICDMA.2010.455
- L Li, S Liu. Modeling and Simulation of Active-Controlled Heave Compensation System of Deep-sea Mining Based on Dynamic Vibration Absorber. IEEE International Conference on Mechatronics and Automation. 2009, pp 1337 - 1341, DOI: 10.1109/ICMA.2009.5246738
- W Wu, S Liu, L Li. The single-freedom ship motion simulation platform and its control in heave compensation system for deep-sea mining. Modern Manufacturing Engineering, 2009, 7: pp 10-14
- Z Zhang, S Liu, L Li. Study on simulation experimental scheme of heave compensation in deep sea mining based on similar principles. 2009. www.paper.edu.cn
- Y Dai, S Liu, L Li, X Hu. Sampling techniques and equipment for SMS exploration by Nautilus Minerals Inc. Ocean Technology. 2008, 27(2): pp 12-17
- Y Li, L Li, K Khalil. Effect of powder loading on metal injection molding of 17-4PH stainless steels. Journal of Materials Processing Technology. 2007, Vol.183(2-3), p.432. DOI: 10.1016/j.jmatprotec.2006.10.039
- M Li, Y Li, H He, L Li. Techniques of solvent debinding for water atomized stainless steel powder injection molding parts. Materials Science and Engineering of Powder Metallurgy, 2006, 16(1): p61-66
- X Tang, Y Li, L Li. Sinter behavior of injection molding compacts made of different particle size powders. Materials Science and Engineering of Powder Metallurgy, 2006, 11(2): pp354-358.
- L Li, Y Li, D Li, Z Deng. Properties of sintered metal injection moulding samples made of coarser stainless steel powders. Materials Science and Engineering of Powder Metallurgy, 2005,10(2): pp 116-121
- L Li, Y Li, Z Deng, D Li. Development and situation of metal powder injection molding equipment. Powder Metallurgy Industry. 2004, 14(6): pp 24-29
- L Li, Y Li, Z Deng, D Li. Development and situation of metal powder injection molding equipment. Materials Science and Engineering of Powder Metallurgy. 2004, 9(3): pp 212-220

Other:

- L Li, G Chen. Mixed Reality Interface of Geospatial Data towards Efficient, Effective, and Reliable Bridge Inspection. The 8th World Conference on Structural Control and Monitoring (8WCSCM) in Orlando, Florida on June 5-8, 2022.
- L Li, G Chen, B Shang. Mixed Reality Enabled Digital Twin For Robot-Assisted Bridge Element Inspection And Maintenance. Proceedings of the 8th World Conference on Structural Control and Monitoring (8WCSCM), Orlando, FL, USA, June 5-8, 2022.
- H Zhang, P Jiao, L Li, Z Shi, B Shang, G Chen. Delamination Detection of Concrete Bridge Deck through UAV-based Infrared Thermography. Proceedings of the 8th World Conference on Structural Control and Monitoring (8WCSCM), Orlando, FL, USA, June 5-8, 2022.
- Z Shi, B. Shang, H Zhang, L Li, G Chen. Evaluation of User-friendliness of Several Unmanned Aircraft Systems for Bridge Inspection. Proceedings of the 8th World Conference on Structural Control and Monitoring (8WCSCM), Orlando, FL, USA, June 5-8, 2022.
- J Pu, L Li, B Shang, G Chen. The Ceiling Effect and Flight Insight of Unmanned Aerial Vehicles During Proximity Inspection of Bridges via Computational Fluid Dynamics Modeling and Simulations. Proceedings of the Thirteenth International Workshop on Structural Health Monitoring (IWSHM), March 15-17, 2022.
- G Chen, L Li. Extended Opportunities through Cross-disciplinary Training: Robot assisted Bridge Preservation. 2021 Missouri S&T Chapter of Chi Epsilon meeting, September 7, 2021.
- L Li, B Shang, D Rawlings, J Ressel, G Chen. Robot-Assisted Underwater Acoustic Imaging for Bridge Scour Evaluation. INSPIRE-UTC 2021 Annual Meeting, Rolla, MO.
- L Li, B Shang, D Badamo, R Huerta, P Jiao, G Chen. Enable Next-generation SHM for cyber-Physical Systems: Digital twin model as a cost-effective planning and training tool of robot-assisted bridge element inspection. 13th International Workshop on Structural Health Monitoring (IWSHM2021), August 31-September 2, 2021, Stanford University, CA, USA
- L Li, R Huerta, G Chen. Mixed reality with HoloLens 2: where Virtual Reality meets Augmented Reality in bridge inspection and training. 13th International Workshop on Structural Health Monitoring (IWSHM2021), August 31-September 2, 2021, Stanford University, CA, USA
- B Shang, L Li, R Huerta, H Matson, P Jiao, D Badamo, G Chen. Development of Bridge Inspection Robot Deployment Systems (BIRDS). 13th International Workshop on Structural Health Monitoring (IWSHM2021), August 31-September 2, 2021, Stanford University, CA, USA
- P Jiao, B Shang, L Li, G Chen. The ceiling effect and flight insight of unmanned aerial vehicles during proximity inspection of bridges via computational fluid dynamics modeling and simulations. 13th International Workshop on Structural Health Monitoring (IWSHM2021), August 31-September 2, 2021, Stanford University, CA, USA
- P Ma, L Li, and G Chen. Gas Leakage Detection with Hyperspectral Imagery-Based Vegetation Stress Indices. 2021 PRCI Virtual Research Exchange (VREX2021), March 2-5, 2021
- Y Jiang, R Xu, R Brown, S Sun, L Li, J Robertson, P Pandey, C Li, A Paterson. DeepFlower: A deep learning framework for characterization of flowering patterns of angiosperms in the field. 2019 ASABE Annual International Meeting - Boston, Massachusetts, July 7-10, 2019
- J Bubert, H Zhu, L Li, S Moose. Deployment of High-Throughput Plant Height Mapping System on Genomes to Fields Germplasm. USDA NIFA FACT Workshop High Throughput, Field-Based Phenotyping Technologies for the Genomes to Fields (G2F) Initiative. January 28 - 30, 2018, AMES, IOWA
- K Meacham, C Montes, L Li, S Long, C Bernacchi. Detecting Variation in Photosynthetic Rates with Hyperspectral Imaging. Phenome 2017. Tucson, AZ
- L Li, L Tian, R Cooke, J Compess, R Trenhaile, H Filippini, S Wilkin. Real-time UAV image-based tile line mapping for precision cover crop management. Proceedings of the American Society of Agricultural and Biological Engineers (ASABE) 2016, Orlando, Florida.
- H Zhu, A Anderson, L Li, L Tian. Performance Study of a Multi-Rotor Unmanned Aerial Vehicle (UAV) based Chemical Application System. Proceedings of the American Society of Agricultural and Biological Engineers (ASABE) 2016, Orlando, Florida.
- Y Zhang, L Li, S Wang, L Tian. A review of key technologies of micro multi-rotor UAV (mUAV) based Sprayer System and its current advances. Proceedings of the American Society of Agricultural and Biological Engineers (ASABE) 2016, Orlando, Florida.
- L Li, Y Cai, L Tian, S Wang. CyberGIS-enabled agriculture drone big data analytics pipeline for precision farming decision making. Proceedings of the American Society of Agricultural and Biological Engineers (ASABE) 2016, Orlando, Florida.

- L Li. CyberGIS-based Agricultural Big Data Analytics: Drone from the Farm to Cloud. CyberGIS Day 2015, National Center for Supercomputing Applications, August 27, 2015, Urbana, IL.
- L Li, L Tian, K Ting. Precision Ag Practice in Biomass Energy Production. Presentation in North Central Extension Research Activity meeting (NCERA-180) on Precision Agriculture Technologies for Food, Fiber, and Energy. March 27-29, 2013, Champaign
- L Li, L Tian, K Ting. Biomass Yield Prediction of Biomass Energy Crop by Real-Time Remote Sensing System, poster for 3rd Pan American Congress on Plants and Bio-energy 2012, University of Illinois at Urbana-Champaign, July 15, 2012
- L Li, L Tian. Site-specific monitoring of energy crop by Near-real-time remote sensing platforms, Poster for Proceedings of the American Society of Agricultural and Biological Engineers (ASABE) 2012 Annual International Meeting. Dallas, Texas, July 29 -August 1, 2012
- L Li, S Liu. Modeling of Active Controlled Heave Compensation System based on Dynamic Vibration Absorber for Deep-sea Mining System. Proceedings of the 8th International Conference on Frontiers of Design and Manufacturing, Sept. 23~26, 2008, Tianjin, China: p2300-2304

Refereed/Adjudicated (currently scheduled or submitted):

- Chen G, Li L, Zhang H, Shi Z, Shang B. Aerial Nondestructive Testing and Evaluation. Materials Evaluation, 2022 (Accepted)

Peer Reviewed/Evaluated (currently scheduled or submitted):

- H Liu, M He, W Cai, G Zhou, Y Wang, L Li. Working Condition Recognition of a Mineral Flotation Process Using the DSFF-DenseNet-DT. Applied Sciences, 2022 (Accepted)
- B Shang, L Li, Z Shi, A Reven, P Jiao, B Li, G Chen. BridgeBot - A flying and traversing robot for bridge inspection. Journal of Intelligent and Robotic Systems, 2022(SubMITTED)
- L Li, G Chen. Drones-Enabled Active Sensing System for Detection of Subsurface Defects in Civil Infrastructure through Synchronized Drone Swarming and Thermal Imaging. 2022(In review).
- H Zhang, T Liu, L Li, M Leu, G Chen. Simulation and experimental validation of Active thermal imaging for concrete substrate defects detection. 2022(In review).
- L Li, B Shang, D Rawlings, A Ramljak, J Ressel, G Chen. Vacuum perched climbing robot based underwater sonar imaging for bridge scouring monitoring. 2022(In review).

Presentations and Other Creative Activities:

- L Li. CyberGIS enabled ag big data analytics pipeline demo. 2015.
<https://www.youtube.com/watch?v=8i3WiVLG6Ic>

Patents:

- Chen G, Reven A, Shang B, Shi Z, Li L, Li, B. Unmanned vehicle having flight configuration and surface transverse configuration. US Provisional Patent 63/409,522. 2022
- L Li, L Tian. Farmer-based agriculture drone data collection mobile software application. UIUC-OTM-2016-088
- L Li, L Tian. Dataset for potential precision agriculture tool development, UIUC OTM-2015
- L Li, F Gao. Modulated car parking system. Application No.: CN201010588065. 2011

Grants and Contracts Awarded:

- NSF Engineering Research Initiative Program: ERI: Drones-Enabled Active Sensing System (DEASS) for Detection of Subsurface Defects in Civil Infrastructure through Synchronized Drone Swarming and Thermal Imaging. 2022-2023, Sole-PI, \$199,946
- Plant Recognition University Challenge: "Intelligent Real-time Plant Recognition and Mapping System (IRPRMS) for Site-specific Utility Vegetation Mapping based on Multispectral Remote Sensing Imagery and Deep Learning", 2021-2022, PI, \$50,000
- T-REX GEO-SEED GRANT PROGRAM: "Mixed Reality Interface of Geospatial Data towards Efficient, Effective, and Reliable Bridge Inspection", 2021-2022, Senior Personnel, \$25,000
- DoD Navy SBIR Phase II: "A Remote Egg-oiling System with Autonomous and Automated Target Object Identification for Nuisance Bird Management", 2020-2023, PI, \$999,538
- DoD Navy SBIR Phase I: "A Remote Egg-oiling System with Autonomous and Automated Target Object Identification for Nuisance Bird Management", 2018-2019, PI, \$224,999
- Microsoft Research award: "Cloud-enabled real-time ag-drone-based data collection/integration and agricultural information system for precision farming decision making with Microsoft Azure" 2016-2017, PI, \$20,000

ARI seed project: Precision cover cropping and its decision tool development, 2015, \$74,000 (I initiated the collaboration and finished 90% of the proposal and budget, 80% of the data collection and processing)

NSF SBIR Phase 1 project: Precision Farming Operating System for Personal Unmanned Aerial Vehicles with Intelligent Field Adaptive Data Collection Protocol, 2016, \$150,000 (I initiated the startup and co-writing the proposal and 80% of the project commitment)

Industry cooperation project of "UAV-based agriculture field sensing and precision chemical application ", Co-PI, 2015, \$80,000 (I initiated the industry collaboration and wrote the proposal both in Chinese and English, responsible for the 50% of the project commitment)

NSF SBIR Phase 1 project: Aerial weed scout with robust adaptive control and machine learning algorithm, 2015, \$150,000 (I initiated the collaborating and finished the technical part of the proposal and 90% of the project commitment)

Campus Research Board research project of "Development and testing of near-real-time remote sensing method for plant improvement", 2013, UIUC, \$20,787 (I led to propose and budget the engineering solution of near-real-time remote sensing and conduct 80% of the system design, field data collection and yield prediction analysis)

FIRE Seed Proposal "High throughput crop phenotyping through remote sensing", 2013-2014, UIUC, \$ 27,732 (I led to propose and budget the high-throughput phenotyping and field traits characterization solution and conducted 50% of the field data collection and data analysis)

Grants and Contracts Pending:

USDA-NIFA: Development of in-situ Plant AI Sap Sensor (iPASS) for Real-Time Soil Acidity Monitoring and Site-Specific Crop Management Improvement, 2023-2025, PI, \$299,832

NSF STAR3DP: Synchronized, targeted, and automated reinforcement in 3D printing concrete structures, Co-PI, 2022-2025, \$814,785

NIDEC MOTOR CORP. Adaptive Vibration Analysis for Automated Fault Detection in Machinery. Co-PI, 2022-2023, \$217,234

RII Track-2 FEC: Creating 'Drought Smart Rural Communities (Drought Smart)' with Enhanced Usage of Emergent Technologies and Real-time Sensing in a changing climate, Co-PI, 2023-2025

Honors and Awards:

2022 NSF CGCA Panel Fellows for CMMI's Game Changer Academies for Advancing Research Innovation

2013 Associate Editor of Agricultural Engineering International: CIGR (Commission Internationale du Genie Rural) Journal

SERVICE:

Major Committee Assignments:

Associate Editor of Agricultural Engineering International: CIGR Journal(2014-present)

Journal Reviewer of Plant Physiology

Journal Reviewer of Computers and Electronics in Agriculture

Journal Reviewer of Industry Robot

Journal Reviewer of Advanced Shipping and Ocean Engineering

Journal Reviewer of Meccanica

Journal Reviewer of Transaction of ASABE

Journal Reviewer of Frontiers in Plant Science

Technical Committee of the Fifth International Conference on Intelligent Systems Design and Engineering Applications

2022 NSF MRI Panel Review

State

Illinois State FFA Awards Judge, 2014: Agricultural Mechanics Repair and Maintenance

2021 UTC INSPIRE Award Judge of Future City - Missouri Region Competition

Professional and Scholarly Organizations:

American Society of Agricultural and Biological Engineer (ASABE), 2012-present

Outreach Service:

Faculty advisor, Vandal Ag Robotics Club, 2022-2023

Demonstration of UAV remote sensing for Introduction to Jackling Program. June 22-July 14, 2021

Team leader of robotics and Augmented Reality demonstration at Boy Scout Jamboree event. Oct 1, 2021

Demonstration of Inspire UTC multimodal robot for American Society of Civil Engineering and Alumni Visiting Event at MST

Demonstration of multimodal drone remote sensing for Vice Chancellor of Research (VCR) visit. March 16, 2021

Community Service:

2022 Hosting USDA-NIFA National Program Leader Dr. Steven Thomson at the University of Idaho:

Overview of NIFA's Funding Opportunities and Tips for Success in Grant Funding

2020 Martial Arts Teacher at LCCC Chinese School

PROFESSIONAL DEVELOPMENT:

Teaching:

2022 New faculty orientation, University of Idaho

2022 KEEN National Conference on Entrepreneurial Mindset (EM) for Teaching and Learning.

2021 S&T Excellence in Online Teaching Certification

2021 S&T Excellence in Designing & Building Your Online Course

2021 S&T New Faculty Orientation for Advancing Faculty Excellence

Scholarship:

2023 Proposal Development Academy (PDA): What You Need to Know Before You Write. University of Idaho

Outreach:

2020 Remote Pilot of Small Unmanned Aircraft System by U.S. DOT and FAA.

2015 NSF Workshop in field-based high-throughput phenotyping, Maricopa Agricultural Center, University of Arizona MARICOPA, AZ

Administration/Management:

2011 Certification of Project Management International training (PMI)

2005 Certification of ISO9001 Quality Management training