Sreevalsan S Menon

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Education

2017 – 2021 **Ph.D., Missouri University of Science and Technology** in Mechanical Engineering
Thesis title: *Identification of Neuromarkers in Health and Disease Using Intrinsic Individual Neuronal Activities in the Human Brain*
GPA: 4.0 out of 4.0

2014 – 2016 **M.Tech. Computer Integrated Manufacturing., University of Calicut** in Mechanical Engineering
Thesis title: *Robotic Micro Abrasive Jet Machining for Recast Layer Removal.*
GPA: 3.9 out of 4.0

2010 – 2014 **B.Tech. with Honours, University of Calicut** in Mechanical Engineering
GPA: 3.7 out of 4.0

Experience

2018 – present **Graduate Teaching Assistant,** Missouri University of Science and Technology
Instructor for controls systems laboratory and mechatronics. Controls systems laboratory course is an introduction to the basics of Labview (includes PID) and PLC control for senior undergraduates. Mechatronics course is an introduction to the basics of mechatronics for graduates and undergraduates including lab and project work in Arduino and Simulink.

2017 – 2020 **Graduate Research Assistant,** Missouri University of Science and Technology
Responsibilities included neuroimaging data processing, modelling and analysis.

2015 – 2016 **Graduate Research Assistant,** Precision Instrumentation Laboratory, Indian Space Research Organization Inertial Systems Unit, India
Worked with ABB robot to achieve the goal of microabrasive jet machining for surface integrity improvement of electric discharge machined micro components.

Skills

Coding	MATLAB, Python, R, LaTeX, Shell script, C (basic-read), C++ (basic-read), Markup Language (basic)
Databases	MySQL
Neuroimaging	FSL, AFNI, SPM, FieldTrip.
Modelling	Simulink, AutoCAD, Solid Edge, Pro-E, Creo 2.0, RobotStudio
Scientific Application	SAS, JMP, LINDO, LINGO, Ansys, Minitab, SPSS
Control Hardware	ABB Robot, Arduino, Quanser, Directsoft PLC, NI myDAQ

Awards and Achievements

- **Missouri S&T 3MT 2021**. Winner and the People's Choice Award
- **Best Paper Award 2017**, Best paper award received for Kerala Technological Congress (KETCON) presentation.
- **Certificate of Excellence 2014**, Certificate of Excellence by University of Calicut for outstanding student.
- **GATE 2014**, Qualified Graduate Aptitude Test in Engineering.

Projects

- **Identification of Neuromarkers**
  Comparison of static and dynamic functional connectivity of the human brain.
  Study of neuronal and functional complexities of the human brain.
  Identification of neural activation patterns in children living in high crime neighborhoods.
  Multimodal Ensemble Deep Learning to Predict Disruptive Behavior Disorders in Adolescents.

- **Nonlinear control of 3-DOF hover**
  Sliding modecontrol applied to a 3 DOF hover system .
  The simulation results (performed in Simulink and MATLAB) shows that the system can be controlled with the proposed sliding mode controller.
  Controller tested in Quanser 3DOF Hover.

- **Robotic Micro Abrasive Jet Machining**
  Investigated issues with the rejection of 50 micron thick gimbal flexure.
  ABB robot was used to achieve the goal of microabrasive jet machining for surface integrity improvement of electric discharge machined micro components.

- **Design and analysis of kinetic energy recovery system in bicycles**
  Designed a product that captures and stores the kinetic energy of braking of a bicycle.
  Implemented further solution to convert stored energy into kinetic energy, propelling the bicycle forward when it restarts.

- **Design and development of pneumatic hybrid vehicle**
  Developed a system to replace a conventional battery pack with an energy harnessing device that compresses air to power a hydraulic motor.
  Demonstrated an ecofriendly and fuel efficient design by combining an internal combustion engine and hydraulic motor

Research Publications

Journal Articles

1. **Menon, S. S.**, & Krishnamurthy, K. (2021). Multimodal ensemble deep learning to predict disruptive behavior disorders in children. *Frontiers in Neuroinformatics*, *15*. https://doi.org/10.3389/fninf.2021.742807
2. **Menon, S. S.**, & Krishnamurthy, K. (2019a). A comparison of static and dynamic functional connectivities for identifying subjects and biological sex using intrinsic individual brain connectivity. *Scientific reports*, *9*(1), 1–11. https://doi.org/10.1038/s41598-019-42090-4
3. **Menon, S. S.**, & Krishnamurthy, K. (2019b). A study of brain neuronal and functional complexities estimated using multiscale entropy in healthy young adults. *Entropy*, *21*(10), 995. https://doi.org/10.3390/e21100995
4. Antony, F., Albert, P., Rimin, P., Disney, R., Sooraj, M., & **Menon, S. S.** (2014). Design and development of pneumatic hybrid vehicle (phv). *International Journal of Innovative Research in Science, Engineering and Technology*, *3*(6), 13184–13191. https://doi.org/10.5281/zenodo.3478671
5. **Menon, S. S.**, Sooraj, M., Mohan, S., Disney, R., & Sukumaran, S. (2013). Design and analysis of kinetic energy recovery system in bicycles. *International Journal of Innovative Research in Science, Engineering and Technology*, *2*(8), 2319–8753. https://doi.org/10.5281/zenodo.3476891

Conference Proceedings

1 **Menon, S. S.**, & Kumar, S. (2017). Surface integrity improvement of edm components by robotic micro abrasive jet machining. *KTU-Kerala Technological Congress 2017 (KETCON 2017)*.
https://doi.org/10.5281/zenodo.3478673

2 **Menon, S. S.**, & Kumar, S. (2016). Robotic micro abrasive jet machining for recast layer removal. *National Level PG Research Conference on Emerging Trends in Manufacturing (FACTURA-2K16)*.

Certification

- **IBM AI Engineering Specialization**. IBM
- **MATLAB Programming for Engineers and Scientists Specialization**. Vanderbilt University
- **Principles of fMRI**. Johns Hopkins University
- **Fundamental Neuroscience for Neuroimaging**. Johns Hopkins University
- **Mathematics for Machine Learning Specialization**. Imperial College London
- **Deep Learning Specialization**. deeplearning.ai
- **Data Science: Foundations using R Specialization**. Johns Hopkins University
- **Machine Learning**. Stanford University
- **Excel Skills for Business Specialization**. Macquarie University
- **CREO for Designers**. PTC University