KEVIN COUTINHO

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SUMMARY

Mechanical Engineering graduate student, with skills in Machine Learning for Material Science, Robotics and Mechanical Design. My long-term career goal is to work in academia, engaging in teaching and research.

EDUCATION

Ph.D., Mechanical Engineering;	Fall 2023- *Present*
Arizona State University, Tempe, AZ	
M.S, Mechanical Engineering;	Graduated May 2023
Arizona State University, Tempe, AZ	3.53 GPA
B.E, Mechanical Engineering;	Graduated Summer 2021
Fr. C. Rodrigues Institute of Technology	8.45 GPA

PUBLICATIONS/CONFERENCES

Design and Simulation of a System for variable bead size deposition in FDM.
[Proceedings of the Virtual International Conference on Product Design Development and Deployment](#), e-ISBN 978-93-92811-10-4, [pg. 103-111](#), Vellore Institute of Technology, India
ResearchGate: https://www.researchgate.net/publication/366214272
Transformation of QSAR by AI and ML (Accepted Jan 2024)
Springer Handbook of Chemi- and Bio-informatics, Section 2 (Cheminformatics I – Ligand-based Molecular Modeling), Section Editor Prof. Kunal Roy, Handbook Editor Prof. Jerzy Leszczynski.

RESEARCH AWARDS

Masters **O**pportunity for **R**esearch in **E**ngineering (**MORE**)	*January 2023- April 2023*
Title: Thermoelectric Material Discovery using Machine Learning Methods	
Funding agency: Arizona State University	
Grant: $1900	

TEACHING EXPERIENCE

Graduate Teaching Assistant: MAE 201 Mechanics of Particles and Rigid Bodies I: Statics	*August 2023- May 2024*
Graduate Student Assistant: MAE 201 Mechanics of Particles and Rigid Bodies I: Statics	*January 2023- April 2023*

TECHNICAL SKILLS

3D CAD and FEA Tools: SOLIDWORKS, CATIA, ANSYS, Autodesk Inventor, 3DEXPERIENCE Platform.
Programming: Python, C, C++, ROS, R, MATLAB.
Additional Skills - Additive Manufacturing (FDM), Control System design, Robotics Toolbox (Peter Corke) & Microsoft Office Suite.

PROFESSIONAL EXPERIENCE

Dassault Systèmes SE, Waltham, MA; *Additive Manufacturing Product Management Intern*   *June 2022 – Aug 2022*

- Conducted a competitive analysis of products and software packages in the Additive Manufacturing landscape.
- Conducted workflow testing of Function Generative Design application on the 3DEXPERIENCE Platform and identify points of interest and scope for improvement for future use in R&D.
- Conducted data compatibility testing from SOLIDWORKS and X-Apps to SIMULIA, ENOVIA and DELMIA apps on the 3DEXPERIENCE Platform.

Ambernath Organics Pvt. Ltd, Mumbai; *Intern*   *June 2019 – Jul 2019*

- Examined assembly of components, maintenance, and overall cost of operation the novel Zero Liquid Discharge plant.
- Gained insight into functioning of an industrial workspace, the various types of machinery and operational procedures.

ACADEMIC PROJECTS

Design and Simulation of a 7 DOF Drill Manipulator for Aerospace Applications   *Aug 2021 – Dec 2021*

Collaborated in a team of four to design a serial, or open chain, manipulator using Robotics Toolbox in MATLAB

- Developed a point-to-point trajectory planning algorithm for the redundant manipulator along with an inverse kinematic algorithm, to achieve drilling of hole patterns at non-cartesian angles.
- Developed a control algorithm to follow the desired trajectory and simulated the desired and actual trajectory of the manipulator.

Modelling and Control of a Reaction Wheel Inverted Pendulum   *Aug 2021 – Dec 2021*

Collaborated in a team of three to

- Developed a 3D CAD and Linearized Mathematical Model of the selected system
- Developed a Full State Feedback Control and an Observer Based Compensator to regularize the system in its upright state.

Design and simulation of a system for variable bead size deposition in FDM   *Jul 2020 – May 2021*

Collaborated in a team of four to design an attachment to the pre-existing hot end and extruder assembly

- Developed the design and control mechanism of the attachment to deposit varying bead sizes beads of a certain range size for the surface and infill while 3D printing a product.

Design of a CVT and Open Differential using python.   *Apr -May 2021; Nov-Dec 2020*

Led team of four to develop

- GUI application for component design of a CVT using Python.
- GUI application for calculation of parameters in designing an Open Differential using Python.

ACTIVITIES

AGORA, ASU, Tempe; Vice President   *Jul 2022- Present*

Life Among the Nations, ASU, Tempe; Volunteer   *Aug 2022- Present*

Team Garuda, Aero FCRIT; Captain   *Mar 2019 – May 2020*

- Spearheaded the establishment of the Aeromodelling Club of Fr. C. Rodrigues Institute of Technology, Vashi.
- Lead the team that successfully designed and fabricated a UAV for SAE ADC 2020.

Head, Debate and Literary Club; Treasurer, Manthan FCRIT   *Mar 2018 – Jun 2021; Jul 2019 – June 2021*