

Tij Vishwakarma, M.Sc.

✉ svishwakarma2015@my.fit.edu ☎ (321) 503-2943 📧 in/tijv 🌐 www.TijVishwa.com

SUMMARY

Results-driven Mechanical Engineer with 3+ years of experience with a strong background in intricate problem-solving and strategic project management within multifaceted engineering landscapes. Proficient in C/C++, Linux Systems, and TCP/IP, complemented by advanced skills in CAD, FEA, and CFD. Demonstrated success in design engineering and product development, alongside hands-on experience in prototyping and optimization methodologies. Seeking a position as a Mechanical Engineer or a related role, to develop cutting-edge products and drive continuous improvement.

EXPERIENCE

Mechanical Engineer | Design Engineer

Catania Product Development LLC

May 2023 – Present, US, FL, Melbourne

- Spearheaded and resolved a major issue with the repetition counter by redesigning and implementing a hall-effect state machine using TCP/IP, Arduino, and Linux environment, thus resurrecting the prototyping process.
- Redesigned and reconstructed an antenna signal scanner, along with recovery and reconfiguration of the software in Linux to deliver a working prototype for Anderson Connectivity, showcasing the potential of an in-house antenna data-acquisition system.
- Supported production of circuit boards by performing board-level checkouts using Linux and TCP/IP protocol for Anderson Connectivity, which improved the turnaround time by 25%.
- Supported production using fast prototyping and testing for VOC Health, ITD Food Safety, and Anderson Connectivity by using SolidWorks, Arduino, and ALTIUM, along with SLA and SLS 3D printing for various projects.

Marine Field Deployment Assistant | R/V W.T. Hogarth

Florida Tech

May 2021 – June 2023, US, FL, Melbourne

- Experimented with and deployed underwater remote operated vehicles (ROVs), including a Klein Side-scan sonar, Proton 5 Magnetometer, and Blue ROV2 to collect field data along the west coast and the east coast of Florida. This data collection and analysis resulted in various finds off the coasts of Florida.
- Supervised and mentored a group of 15 undergraduate seniors during these deployments.
- Managed team activities and coordination in a dynamic environment, while on-board a research ship.

Academic Researcher | Klein Marine Systems

Florida Tech | Contract

January 2021 – December 2022, US, FL, Melbourne

- Led a team of 3 graduate students to perform a CFD efficiency case study for Klein Marine Systems Ltd. on their towfish sidescan sonar using ANSYS FLUENT R1. This established benchmark hydrostatic and hydrodynamic stability and force results and helped Klein Marine Systems identify turbulent areas in the design.
- Reduced the turbulence by redesigning the geometry and rerunning the tests by 34%, thus improving the underwater motion efficiency.
- Project managed and supervised this initiative by tracking and documenting the progress to meet the bi-weekly deadlines.
- Provided bi-weekly feedback to the client through online review sessions and CDR reports documentation and submissions.

Instructor, Fellowship Grant

OCE 5903: CFD for Ocean Eng. | Contract

January 2023 – May 2023, US, FL, Melbourne

- Planned and synthesized a university-level course for undergraduate and graduate students about the basics of Computational Fluid Dynamics (CFD) in Ocean Engineering.
- Simplified and delivered complex concepts of Differential Equations, Partial Differential Equations, and Fluid Dynamics without compromising the learning objectives of the course.
- Taught and showcased fluency in ANSYS FLUENT and STAR CCM+ for CFD analysis to the students by providing a step-by-step guide to the software.
- Managed and supervised the progress of the students using two-way communication and following a horizontal chain of command. This improved student's performance by 32%.

Instructor, Fellowship Grant

Oce 2002: Computer Apps in Ocean Eng. | Contract

August 2022 – December 2022, US, FL, Melbourne

- Designed and taught engineering sophomore students PTC CREO, ANSYS FLUENT, C/C++, 3D Printing, and MATLAB.
 - Created, assigned, and graded homework and projects for 23 undergraduates with detailed performance feedback.
 - Overlooked and tracked the progress of students with multidiscipline backgrounds.
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PROJECTS

Front End Web Development

www.TijVishwa.com · August 2022 - December 2022

- Implemented HTML, CSS, and JavaScript to develop a responsive, interactive online portfolio.
- Incorporated advanced HTML concepts like Text Formatting, Tables, Headers and Footers integration, Hyperlinked Texts, embedded documents and pictures, and contact forms.
- Incorporated advanced CSS concepts like Media Queries, Pseudo-classes and Pseudo-elements, Z-Indexing, Icon Integration, Background Masking and Radial Gradient Masking, Shape Outside property, and scroll-snapping to provide a seamless responsive UI & UX across all platforms and screen sizes.
- Incorporated advanced JavaScript concepts like PopState & PushState Events, Hashing, Object Comparison, Callback Functions, Prototyping, IIFE, Scope, JS Closures, Currying, and Transition effects to aid with the seamless UI & UX across all platforms.

Project & Propulsion Lead

Flying Fish Multi-domain UAV/SSV/AUV · May 2017 - January 2020

- Developed a water-jet propulsion system for the Flying Fish Multi-Domain UAV, effectively increasing the take-off speed by 50%.
- Supervised a team of four in the ideation and drafting of vehicle subsystems (Ocean, Propulsion, and Structures), thus streamlining the development process.
- Awarded 2nd Place at the 6th World Maritime Technology Conference (WMTC).

EDUCATION

Master of Science in Ocean Engineering

Florida Tech · Melbourne, FL · 2024 · 3.8

- Awarded the Fellowship Grant, with a full scholarship and stipend for research work.

Bachelor of Science in Aerospace Engineering

Florida Tech · Melbourne · 2020

- Awarded partial scholarship for 4 years due to grades.

HONORS & ACCOLADES

Outstanding Student of the Year

Florida Tech · Department of Engineering · January 2024 - Present

Honorary Scholar

Florida Tech · Phi Kappa Phi National Honor Society · January 2023 - Present

Honorary Scholar

Florida Tech · Phi Eta Sigma National Honor · January 2021 - Present

Cast Member | IMDB

Amazon Prime Video · The College Tour Documentary, S01 E02. · November 2020 - Present

Second Place | 6th World Maritime Technology Conference

Florida Tech · Student Innovation Marine Design Competition. · December 2018 - Present

SKILLS

Programming Languages: C, C++, Linux, TCP/IP, I2C, UART, Arduino, Matlab, HTML, CSS, JavaScript, Python

Development Tools: Siemens NX, FEA, CFD, GD&T, CAD, SolidWorks, AutoCAD, STAR CCM+, SLA & SLS 3D Printing, Altium Studio, PTC CREO, Ansys