

# VIVASWAT SURESH

EXPECTED GRADUATION: DECEMBER 2023

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## EDUCATION

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**University of California - San Diego**, San Diego, CA

Sept. 2020 – December 2023 📅

**Major:** B.S. Computer Science, Mathematics

GPA: 3.6

## WORK EXPERIENCE

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**FishSense** – San Diego, CA

January 2021 – present 📅

Software Developer

- Currently developing a Rust pipeline for novel laser-assisted underwater fish length measurement. Previously developed a Python pipeline for the same purpose.
- Modeled parallax between laser and camera and trained a convolutional neural network to automatically detect laser in image RAWs. Achieved 98% accuracy in laser detection.
- Developed a program to synchronize two GoPro videos based on an impulse noise using time series analysis techniques to create a stereo camera.
- Implemented a non-machine learning approach to fish species identification using the Eigenface algorithm to identify fish species for the measurement of fish population health.
- Technologies used: Rust, Python, PyTorch, Tensorflow 2.0, Keras, Matrix Profiles, Stumpy, C/C++

**Applied Materials** – Santa Clara, CA

June 2022 – December 2022 📅

Data Science/ML Intern

- Analyzed data collected from semiconductor manufacturing machines using various ML techniques.
- Conducted an expansive scientific literature review on cutting edge time series analysis techniques.
- Leveraged unsupervised learning techniques on semiconductor wafer data in order to detect discords and motifs within expansive datasets.
- Implemented a fast similarity search algorithm to quickly comb through decades of data to find similar subsequences to trace anomalies through time.
- Technologies used: Python, Stumpy, Matrix Profiles, FFT, DFT

**Argovis** – San Diego, CA

February 2021 – February 2022 📅

Software Engineer

- Worked on Argovis, a web application that is used to search for, download, and visualize ocean data from thousands of robotic floats around the ocean.
- Created UI changes for oceanographers to better model data on argovis servers.
- Leveraged modern Python libraries to upgrade outdated algorithm for storing data in MongoDB documents for ease of developer understanding and future development.
- Technologies used: Typescript, Angular, Docker, Docker Compose, Bash, MongoDB

## PUBLICATIONS

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- P. Tueller, R. Maddukuri, P. Paxson, V. Suresh, A. Ashok, M. Bland, R. Wallace, J. Guerrero, B. Semmens, and R. Kastner. Fishsense: Underwater rgbd imaging for fish measurement. In *OCEANS 2021: San Diego – Porto*, pages 1–5, 2021

## PROJECTS

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### Semantic Segmentation for Autonomous Vehicles

- Implemented multiple Machine Learning segmentation models using the Cityscapes dataset, namely U-Net, U-Net++, SegNet, and FCN to compare accuracies of different SOTA segmentation models.
- Achieved 62% pixel accuracy on U-Net++ with limited training data.
- **Technologies used:** Python, Tensorflow 2.0, Keras

### Autonomous Underwater Laser Detection

- Developed a machine learning based approach to automatic underwater laser detection using Pytorch.
- Achived 98% accuracy in laser detection using underwater test data.
- **Technologies used:** Python, PyTorch, scikit-image, OpenCV

**Check out my website for more!**