

Travis Moscicki

Email: travismoscicki@gmail.com • Repo: <https://bitbucket.org/ohNoYouFoundMyCode/takethis>

Phone Number: 561-613-5316 • GRE:158 Q, 161 V

Education

B.S. Ocean Engineering '17 Florida Atlantic University

- **Cum Laude • GPA: 3.64 • Minor in Computer Science**
- Recipient of Faculty Award for Outstanding Leadership
- Dean's List: Spring '14, Fall '15 • President's Honor Roll: Spring '14, Fall '15

Ph.D. Ocean Engineering '21 (expected) Florida Atlantic University

Recipient of DOD SMART Scholarship: Sponsoring Facility - SSCPAC

Current Research

- Station keeping control of unmanned surface vehicles
- Object classification algorithms for fused LiDAR and RGB camera data
- Model based trajectory generation
- Human Robot Interaction

Project Experience

Team Captain (2016); Systems Engineer (2014)

AUVSI's RobotX Maritime Challenge – Website: worx-robotx.org

- Led a team of 20+ undergraduate and graduate students in the development of an unmanned surface vessel
- Co-developed a modular high level planner in C++ and ROS that allows for streamlined mission switching
- Performed functional decomposition and developed system architecture standards
- Carried out extensive testing and system debugging with a focus on software logic and mechanics
- Fostered a team dynamic with emphasis on personal growth, accountability, and providing deliverables

Team Captain (2014, 2015, 2016, 2018)

AUVSI's RoboBoat Competition - Website: auvsiasv.fau.edu

- Trained a team of engineers in the principles of unmanned surface vehicle development
- Led a team of undergraduate students to 2nd place two years in a row in an international robotics competition
- Developed object detection/object avoidance routines by fusing LiDAR and camera data
- Implemented object tracking, color constancy, and optical character recognition algorithms
- Developed Robot Operating System (ROS) nodes for a modular high level planner

Research Experience

Research Fellow (2016-2017)

Southeast National Marine Renewable Energy Center

- Utilized NREL developed FAST suite to create computational model of an Ocean Current Turbine

Undergraduate Researcher (2014-2017)

Marine Systems Laboratory

- Introduced a front scanning sonar and partnered high level planner for deployment on a USV
- Provided multi-system support during design, installation, debugging, and runtime on multiple USV's

Conferences and Publications

RobotX Forum (Sydney, Australia 2017) (Paper, Poster)

- WAM-V based multi-domain and human-robot interaction at FAU

OCEANS (Aberdeen, Scotland 2017) (Paper)

- Towards Adjustable Autonomy for Human-Robot Interaction in Marine Systems

Marine Energy Technology Symposium (Washington DC 2017) (Poster)

- Numerical Analysis of a Moored Ocean Current Turbine using National Renewable Energy Laboratory Tools

Florida Undergraduate Research Conference (Boca Raton, FL 2016) (Poster)

- Numerical Analysis of a Moored Ocean Current Turbine using National Renewable Energy Laboratory Tools

Technical Skills

Programming: C++, ROS, OpenCV, MATLAB, C, Assembly

Operating Systems: Embedded Linux, Desktop Linux, Windows

Microprocessors/Microcontrollers: Jetson TK1, Raspberry Pi, MSP430, TS7800, Arduino

Editors: Nano, Sublime, Vim, Code::Blocks, Visual Studio, Brackets

Mechanical: SolidWorks, Ansys, Mill, Lathe

Electrical: PCAD, PCB Design, Creating/Reading System Schematics, MicroCap, Soldering

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Volunteering

Ocean Engineering Mentorship Program

- Guided high school freshman with development of a vision-based lionfish tracker (Won multiple awards)
- Guided local middle schools with developing vehicles for the SeaPearch Challenge
- Organized a SeaPerch national qualifier competition with over 100 students participating

Marine Robotics Club Seminar Series

- Organized a program with 11 seminars over the course of two semesters
- Presenters consisted of both graduate and undergraduate students from a mixture of engineering disciplines
- Presented seminars on OpenCV, Ubuntu, and Controls
- Over 4,200 views from over 100 countries for a total of nearly 10,000 minutes watched

Science Olympiad (2015, 2016, 2017)

- Event Organizer for the “Robotic Arm” competition, including course construction and scoring

Engineering Student Council (2014-2015)

- Worked with a team to organize “Engineer’s Week 2014”, led middle school mousetrap car competition

Organizations

President (2015-16) Vice President (2014-15) Recruitment Chair (2014-2015)

Marine Robotics Club – Website: mrc.eng.fau.edu

- Managed engineering teams in designing vehicles for the RoboSub and RoboBoat competitions
- Worked directly with senior faculty and staff to plan strategy, develop architecture, and raise funds
- Introduced the Ocean Engineering Mentorship Program
- Increased Membership by over 200%

In Class Projects

Hybrid Electric Reverse Osmosis (OE Control and Design)

- Designed a PCB to automate the control of a reverse osmosis sea water desalination system
- Acted as maintainer for group’s git repo and personally committed ~3000 lines of code
- Provided progress updates during weekly review meetings to a panel of engineers
- Developed a reverse osmosis system on a \$1600 budget that can provide 200 gallons per day of fresh water, running for 1 week without maintenance, and relaying all health monitoring data to a custom developed GUI

Coffee Maker (Electro-Mechanical Devices)

- Designed and developed an Arduino based coffee maker consisting of a closed loop PID controller, thermocouple signal amplification through op amps, interrupt driven menu

Analysis of a Hull (Fluid Mechanics)

- Developed code to determine the displaced volume, surface area, and drag coefficient of a hull based on user defined cross sections and a system of surface integrals

Learning Ansys (Structural Analysis)

- Developed an Ansys model to compare the deflections, reaction forces, and stresses of a 3D truss to hand-worked solutions using Virtual Work and Castigliano’s Method

Reclaiming Energy from a Car (Heat Transfer)

- Proposed and analyzed a Rankine Cycle to extract waste heat from vehicles radiator system

References

Dr. Karl von Ellenrieder – karl.vonellenrieder@unibz.it

Faculty of Science and Technology Professor, Free University of Bolzano

Dr. Manhar Dhanak - dhanak@fau.edu

Director Of SeaTech, Florida Atlantic University

Dr. Jim Van Zwieten - jvanzwie@fau.edu

Southeast National Marine Renewable Energy Center

Associate Research Professor, Florida Atlantic University

Dr. Ivan Bertaska - ibertask@fau.edu

George C. Marshall Flight Center, NASA

Chris Marcello – cmarcello@nav.mil

United States Navy