David I. Iglesias-Echevarria

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Intro

My professional goal is to design and build robotic systems that push the boundaries of what is currently conceivable and bring value to society in a sustainable way. Values-driven and experienced in fast-paced environments, with proven ability to work and learn both collaboratively and independently.

Work experience

Robotics Software Engineer, February 2019 – Present | ***Verdant Robotics***, Hayward, US
Autonomy and robotics applied to farming operations.

- Developed real-time camera calibration libraries and applications using Google Ceres
- Developed multi-sensor calibration algorithms using Matlab (IMU, GNSS, camera)
- Owner of entire calibration codebase, adding unit and regression tests and integrating those into the CI/CD platform
- Wrote camera drivers (Basler and Spinnaker)
- Wrote real-time 3D graphics applications using GLFW (OpenGL-compliant) and ImGui
- Code written was regularly tested and deployed on platform operating in the real world
- Joined at embryonic stage, helped company go through different funding rounds and demos

Software Engineer, January 2018 – January 2019 | ***Point One Navigation***, San Francisco, US
High-fidelity precise localization algorithms using cost-effective sensor suite.

- Contributed to different navigation solutions (loosely- and tightly-coupled EKF and SRIF)
- Wrote prototype and production code for both offline and online multi-sensor calibration algorithms using data from multiple sources (cameras, GPS/GNSS, IMU, wheel odometer)

Graduate Research Assistant, August 2015 – July 2017 | ***University of Colorado Boulder***, US

- Developed novel algorithm for robot localization using an event-based Extended Kalman Filter as part of the Cooperative Human-Robot Intelligence Lab. One paper published at *Journal of Aerospace Information Systems* (https://arxiv.org/pdf/1802.07346.pdf)

Education

M.S. Aerospace Engineering, Summer 2017 | ***University of Colorado Boulder***, US
Balsells International Fellow. GPA = 3.7/4.0
Thesis: Cooperative robot localization using event-triggered estimation. Advisor: Prof. Nisar Ahmed.

B.S. Aerospace Engineering, Summer 2015 | ***Polytechnic University of Catalonia***, Barcelona, Spain
Top 5% of the class. Scholarship to complete senior thesis at the University of Colorado Boulder.
Thesis: Study of detonation waves in rotating detonation engines. Advisor: Prof. Peter Hamlington.

Skills

- Estimation theory, probabilistic filtering (EKF, UKF, particle filter), sensor fusion, calibration, SLAM, multi-view geometry, localization, optimization
- Languages: C++, Matlab, Python, shell scripting
- Software/Libraries: Ceres, git, CMake, Docker, Jenkins, gtest, glog, OpenCV, OpenGL
- Fluent in English, Spanish, and Catalan, intermediate French

Other

Spanish citizenship, US permanent resident