E. Ramona Stefanescu

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EDUCATION

Stanford University — Palo Alto, CA
Graduate Certificate - Artificial Intelligence — *Sep. 2017 – present*

University at Buffalo — Buffalo, NY
Ph.D. Mechanical Engineering - Computational Mechanics — *Feb. 2008 – Sep. 2014*

University at Buffalo — Buffalo, NY
M.S. Mechanical Engineering - Computational Mechanics — *Aug. 2007 – Feb. 2011*

Politechnica University of Bucharest — Bucharest, Romania
B.S. Mechanical Engineering - Mechatronics — *Sep. 2002 – July 2007*

Hyperion University — Bucharest, Romania
B.S. Computer Science - Systems with Microprocessors — *Sep. 1999 – July 2004*

EXPERIENCE

Cyngn — Palo Alto, CA
Team Lead Localization — *May 2017- Present*

- Implemented a pipeline for Simultaneous Localization and Mapping (SLAM) using visual odometry, inertial measurements and map information. Worked on a complete computer vision system for both mono and stereo camera, which included the determination of both intrinsic and extrinsic parameters (camera calibration), feature detection and tracking, outliner detection and non-linear estimation.
- Developed a Bayesian Filter to combine different sensor information to obtain the optimal pose estimate of a vehicle.

Udacity — Mountain View, CA
Self-Driving Car Nanodegree Program Mentor — *Dec. 2016 - Oct. 2017*

- Mentor students in the Udacity's Classroom. Provide guidance in the area of computer vision and deep learning, with emphasize on Convolution Neural Networks, Behavior Cloning using TensorFlow and Keras.

Future Mobility USA Corp. — Sunnyvale, CA
Autonomous Driving Localization Systems Lead — *Aug. 2016 - May 2017*

- Formulate and implement localization and mapping algorithms to enable Level 4 autonomous driving. Responsible for building highly efficient, large-scale, distributed data processing pipeline for mapping and localization. Determine platform software requirements and architecture, and decide on the functional components and commendable features for an autonomous driving system.
- Identify new technologies that can be brought into the team to provide new innovations.

Mercedes Benz Research & Development North America — Sunnyvale, CA
Software Engineer, Autonomous Driving — *Sep. 2015 - Aug. 2016*

- Responsible for advanced research topics in the area of localization for self-driving cars. Developed efficient and robust algorithms for localization, combining novel tracking techniques with stochastic filtering and graph optimization methods. Designed algorithms such as visual inertial odometry, dead reckoning, map matching and data association for mapping and localization. Evaluated different loosely and tightly coupled GPS/IMU systems and integrated an Interacting Multiple Model (IMM) for a more accurate state estimation.
- Represented the company at various conferences and meetings.
- Mentored junior engineers on best practices and the current state of the art in the field.

University at Buffalo — Buffalo, NY
Postdoctoral Fellow — *Aug. 2014 - Sep. 2015*

- Addressed the problem of fast emulator construction by developing novel strategies for Big Data from computationally expensive simulations. Used a combination of efficient sparse representations of simulation "data" with graph theory, low-rank approximation and multilevel-multiscale methodologies. Improved the Gaussian Process Regression limitation regarding memory requirements and computational demands.

- - Used Bayesian Model Averaging (BMA) to predict the probability density function (PDF) of the quantity of interest to be predicted and forecasted.
  - Served as a Co-Principal Investigator in a series of proposal submission including Partnerships for Innovation: Accelerating Innovation Research - Technology Translation (PFI: AIR-TT).

- **University at Buffalo** Buffalo, NY
  Research and Teaching Assistant *Aug. 2007 - Aug. 2014*
  - Improved the Gaussian Process Regression limitation regarding memory requirements and computational demands. Used Bayesian Model Averaging (BMA) to predict the probability density function (PDF) of the quantity of interest to be predicted and forecasted.
  - Implemented and improved spatial statistics methodologies for high-resolution topography products. Considered the problem of terrain segmentation and clustering in homogeneous regions using a spectral clustering and a Gaussian model for a more complex error assessment.

Honors and Awards

- NSF i-CORPS Award, Apr. 8 -May 20, 2014
- Finalist (top 5 out of 75) of Panasci Technology Entrepreneurship Competition, Apr. 2014
- e-Lab Entrepreneurship course fellowship award, Jan. 2014
- Student award MAE Graduate Student Poster Competition, Mar. 2013
- The Buffalo chapter of ASME recognition, Apr. 2013
- Travel award Summer School in "Low-Dimensional Structure in High-Dimensional Systems", SAMSI, Raleigh, NC, 2013
- Travel award Gene Golub SIAM Summer School on "Simulation and Supercomputing in the Geosciences", Monterey, CA, 2012
- Ph.D./M.S Fellowship Award, University at Buffalo
- Class Valedictorian, Politechnica University
- 3rd place at The Inter-University Mathematics Competition for undergraduates students
- Erasmus Scholarship at Galway-Mayo Institute of Technology (GMIT), Ireland – Digital & Software System Engineering, Sep. 2004 - June 2005

Programming Skills

- **Languages**: Python, C/C++, ROS, bash scripting

- **Libraries**: TensorFlow, Ceres, g2o

Other

- Green card holder

- Publications and references upon request