

Curriculum Vitae

Joni Shaska

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Education

August 2019—

Present

Doctorate of Philosophy in Electrical Engineering

University of Southern California, Los Angeles, CA

GPA: 3.94 of 4.0

Education

January 2017—

May 2019

Bachelor of Engineering in Electrical Engineering

University of Michigan, Ann Arbor, MI

GPA: 3.83 of 4.0

Summa cum laude

Honors and Awards

- University of Southern California Annenberg Fellowship (2019)
- University of Michigan Dean's List (January 2017 - April 2019)
- Michigan State Dean's List (December 2016 - December 2017)

Key Courses

- **University of Southern California:** Stochastic Processes for Engineers, Information Theory and Its Application to (Big) Data Science, Estimation Theory, Data Networks: Design and Analysis, Optimization for the Information and Data Sciences, Non-linear Dynamics and Transitions to Chaos, Real Analysis.
- **University of Michigan:** Programming and Data Structures, Digital Signal Processing, Control Systems Design and Analysis, Linear System Theory, Numerical Methods for Engineers, Advanced Calculus, Digital Communication and Codes, Introduction to Modern Algebra.

Research Summary

Primary research interests include modelling real world systems, such as microbial systems, using elements of stochastic processes, information, detection, and estimation theory. Currently focusing on decision making in multi-agent systems, with an emphasis on detection.

Experience and Research

August 2019—

Present

Project: Stochastic Modelling of Biological Systems (PhD)

University of Southern California

Advisor: Urbashi Mitra

Contributions:

- Currently using stochastic control and information theory to model biological behavior with an emphasis on prediction.
- Use techniques from detection theory, convex optimization, and information theory.

*April 2018—
August 2018*

Project: Low-Complexity Decoding with Feedback
University of Michigan

Advisor: Achilleas Anastasopoulos

Contributions:

- Designed and analyzed decoding schemes over discrete memoryless channels with feedback using communication and information theory.
- Wrote code in C++ to simulate and verify theoretical results.

*December 2016—
May 2016*

Project: Extension of the Merton Model
Michigan State University

Advisor: Albert Cohen

Contributions:

- Used stochastic calculus to model financial systems.
- Wrote code to implement both the Merton model and our extension to the model in Python and Mathematica.
- Performed statistical analysis on stock and bond data received from a Bloomberg terminal.

Teaching Experience

*August 2021—
December 2021*

Course: EE 550: Data Networks: Design and Analysis
University of Southern California

Currently Assisting Professor Michael Neely in EE 550. Responsibilities include holding discussion sessions, office hours, and grading.

Other Projects

*January 2019—
April 2019*

Course: Facial Recognition Software
University of Michigan

Developed a facial recognition software. Designed, wrote, trained, and implemented a neural network in Python. The software recognized classmates in real time that the neural network had used for training.

September 2017—

Course: DSP Project: Tracking Finger Position

December 2017

University of Michigan

Wrote and implemented a Kalman filter in MATLAB. Applied the filter to down-sampled data consisting of neural data and finger kinetics collected from Chestek labs at the University of Michigan. Achieved a correlation of .97 between actual and predicted position.

Publications

- J. Shaska and U. Mitra. “Decentralized Decision Making in Multi-Agent Networks: the State-Dependent Case”. In: *to be presented at the Global Communications Conference (GLOBECOM)*. Madrid, Spain, Dec. 2021

Technical experience

Mathematical modelling, Python, C++, MATLAB, Mathematica, statistical data analysis, public speaking.

Languages

- English (native)
- Albanian (understand fluently, speak and read with basic competence)

References

Urbashi Mitra (PhD advisor)

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