Saman Cyrus

CONTACT INFORMATION	4235D-2 Wisconsin Institute for Discovery University of Wisconsin-Madison Madison, Wisconsin USA 🌐https://saman749.github.io/	Email:cyrus2@wisc.edu Phone: (608)772-6458 ⊕https://github.com/saman749 in www.linkedin.com/in/saman-cyrus

WORK EXPERIENCE

Johnson Controls International, Milwaukee, WI, USA   01/2019-Present
Graduate intern.
Working on the problem of model predictive controls for HVAC systems. As a graduate intern, my role is to investigate new ideas and novel applications of model predictive controls in building energy management using HVAC systems. This includes working with, multi-objecitve optimization and mixed-integer linear programming problems.

PEOPLE Program, Madison, WI, USA   Summer 2015, 2016

PSQ Co., Iran   04/2010- 08/2013

EDUCATION

University of Wisconsin–Madison, Madison, Wisconsin, USA

Electrical and Computer Engineering (ECE) Department
- PhD Candidate, **Major:** ECE (Automatic Controls)   **(Exp.) 2019**
  Minor: Computer Sciences,
  Done with the coursework & qualifying exam
  Adviser: Dr. Laurent Lessard
  I work on the intersection of robust control and optimization. Formulating optimization problems as feedback systems and applying tools from control theory, i.e., $\mathcal{H}_2$ and $\mathcal{H}_\infty$ control, stability criteria like integral quadratic constraints (IQCs), passivity, circle criterion.

- M.Sc. in Electrical Engineering   **05/2015**
  Thesis: Locational effects of variability of injected power on total cost

Mechanical Engineering Department
- M.Sc. in Mechanical Engineering   **05/2018**

Computer Science (CS) Department
- M.Sc. in Computer Sciences   **05/2017**

K.N.Toosi University of Technology

Electrical Engineering Department
- M.Sc. in Electrical Engineering-Control   **02/2013**
  Thesis: Fast Optimization Algorithms in Model Predictive Control

Iran University of Science & Technology

Electrical Engineering Department
- B.Sc. in Electrical Engineering-Control   **10/2009**

RESEARCH INTERESTS

Optimization, Machine Learning, Robust Control, Model Predictive Control

TEACHING EXPERIENCE	**University of Wisconsin–Madison**
	• **Teaching Assistant** for Physics 109, Physics in The Arts 2015-2016
	• **Teaching Assistant** for ECE 271, Electronics Lab., 2016-2017
	• **Teaching Assistant** for Math/Stat/CS 525, Linear Programming Fall 2016

TEACHING EXPERIENCE

University of Wisconsin–Madison
- **Teaching Assistant** for Physics 109, Physics in The Arts   2015-2016
- **Teaching Assistant** for ECE 271, Electronics Lab.,   2016-2017
- **Teaching Assistant** for Math/Stat/CS 525, Linear Programming   Fall 2016

K.N.Toosi University of Technology
- **Teaching Assistant** for Linear Control Systems
- **Teaching Assistant** for Modern Control Engineering
- **Teaching Assistant** for Probability and Statistics

Iran University of Science and Technology
- **Teaching Assistant** for Electricity Physics
- **Teaching Assistant** for Electronics I

PROFESSIONAL ACTIVITIES

Reviewer
- International Journal of Robust and Nonlinear Control
- American Control Conference (ACC)
- IEEE Conference on Decision and Control (CDC)

Professional Activities
- Treasurer, Persian Student Society, University of Wisconsin Madison

Membership
- IEEE (member number: 90358575), SIAM (member number: 020045256)

COURSEWORK

- **Engineering**

Course	Number	Institution
Linear Systems	ECE 717	UW–Madison
Optimal Systems	ECE 719	UW–Madison
Probability and Random Processes	ECE 730	UW–Madison
Nonlinear Systems	ECE 817	UW–Madison
Advanced Robotics	ECE/ME 739	UW–Madison
Physics-Based Modeling for Comp. Cntrl	ME 547	UW–Madison
Dynamics of Controlled Systems	ME 746	UW–Madison
Hybrid Control Systems		KNTU
Robust Control Systems		KNTU
Optimal Control Systems		KNTU
Fuzzy Control Systems		KNTU
Modern Control		IUST
Feedback Control Systems		IUST
Industrial Control systems		IUST
Operational Research		IUST

- **Computer Science & Math**

Course	Number	Institution
Introduction to Algorithms	CS 577	UW–Madison
Large-scale Machine Learn. & Opt.	CS 838	UW–Madison
Pattern Recognition	CS 532	UW–Madison
Linear Programming	CS 525	UW–Madison
Advanced Linear Programming	CS 526	UW–Madison
Stochastic Programming	CS 719	UW–Madison
Integer Programming	CS 720	UW–Madison
Nonlinear Programming I	CS 726	UW–Madison
Convex Analysis	CS 727	UW–Madison
Nonlinear Programming II	CS 730	UW–Madison
Artificial Neural networks and Fuzzy logic	CS 539	UW–Madison
Wireless Networks	CS 707	UW–Madison
Numerical Linear Algebra	CS 513	UW–Madison
Mathematical Analysis	Math 521	UW–Madison
Advanced Engineering Mathematics		KNTU
Probability and Statistics		IUST

RELEVANT
SKILLS

Languages:	English, Persian, Arabic (fair), Spanish (beginner)
Typesetting:	Word, LaTeX
Other:	C++ (Intermediate), Python (familiar), Matlab (Professional), Excel (Professional), Mathematica, Mql4, GAMS

PUBLICATIONS

Cyrus, S., Laurent Lessard, "Unifed Necessary and Sufficient Conditions for the Robust Stability of Interconnected Sector-Bounded Systems", To appear in CDC 2019.

Cyrus, S., Khaki-Sedigh, A., "Fast optimization algorithms in model predictive control," arXiv preprint arXiv:1904.07459 (2019).

Cyrus, S., Hu B., Bryan Van Scoy, Laurent Lessard, "A Robust Accelerated Optimization Algorithm for Strongly Convex Functions", *American Control Conference, 2018*, 1376-1381, June 2018. (Milwaukee, WI).

Cyrus, S., and Bernard L. "Locational effects of variability of injected power on total cost." *Power and Energy Conference at Illinois (PECI), 2015 IEEE*. IEEE, 2015.

PRESENTATION

- Optimization and Control Theory, Wisconsin Institute for Discovery, May 2018

REFERENCES

Prof. L. Lessard, Professor
ECE Department,
University of Wisconsin- Madison
laurent.lessard@wisc.edu

Prof. R. Nowak, Professor
ECE Department,
University of Wisconsin- Madison
rdnowak@wisc.edu