ALIMZHAN SULTANGAZIN

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EDUCATION

University of California - Los Angeles, CA, USA **September 2017 - present**

PhD, Electrical and Computer Engineering (Concentration: Signals & Systems)

Master of Science in Electrical and Computer Engineering (completed)

Completed courses in Reinforcement Learning, Verification and Control of Hybrid Systems, Neural Networks & Deep Learning, Convex Optimization, Computational Imaging, Geometric Nonlinear Control, Linear Dynamical Systems, Intellectual Property for Technology Entrepreneurs, and Introduction to Algorithms and Complexity. GPA: 3.84/4.0

Nazarbayev University, Astana, Kazakhstan **September 2012 – May 2017**

Bachelor of Engineering, Electrical and Electronic Engineering (Concentration: Communication systems)

Completed courses in Electromagnetics, Digital Signal and Image Processing, Advanced Communication Systems, Power Systems Analysis and Engineering Systems Design. Graduated Magna Cum Laude.

EXPERIENCE

University of California - Los Angeles, CA, USA

Graduate Student Researcher, UCLA CyPhyLab **January 2018 - present**

- Working under supervision of Professor Paulo Tabuada on projects concerning nonlinear control, control from expert demonstrations and control using machine perception.
- Developed an algorithm for secure and private control over the cloud, which resulted in three conference and one journal publication.
- Developed a framework allowing to imitate expert control of a class of nonlinear systems from a finite number of demonstrations

AlphaPilot – AI Drone Innovation Challenge by Lockheed Martin

Member of the team "Formula Drone" **January 2019 - December 2019**

As part of one of the nine teams winning the qualifying round, worked on the design of the AI framework, written in C++, that can pilot racing drones through aerial courses at high speed without GPS, data relay or human intervention. Designed algorithms for optimal trajectory generation and collected data for training of the visual detection system, based on a neural network.

Astana Solar LLP, Astana

Intern **Summer 2015**

Worked as a technician on the solar panel construction line at the Production Department of the company. Decreased the frequency of faults by suggesting safer and more reliable manufacturing techniques.

NURIS Centre for Energy Research, Astana

Intern Research Assistant **Summer 2013**

Developed the software framework for automated weather data analysis and monitoring that was used in sustainable energy studies and supervised the development team of three interns. Regularly communicated the results to the full-time personnel and presented the completed work.

PUBLICATIONS

A. Sultangazin, L. Fraile, and P. Tabuada, "Exploiting the experts: Learning to control unknown SISO feedback linearizable systems from expert demonstrations," to appear ***2021 IEEE Conference on Decision and Control (CDC)***

A. Sultangazin and P. Tabuada, "Symmetries and isomorphisms for privacy in control over the cloud," in ***IEEE Transactions on Automatic Control***, vol. 66, no. 2, pp. 538-549, Feb. 2021.

A. Sultangazin, S. Diggavi and P. Tabuada, " Symmetries and Privacy in Control Over the Cloud: Uncertainty Sets and Side Knowledge," ***2019 IEEE Conference on Decision and Control (CDC),*** *Nice, France*

A. Sultangazin, S. Diggavi and P. Tabuada, "Protecting the Privacy of Networked Multi-Agent Systems Controlled over the Cloud," ***2018 27th International Conference on Computer Communication and Networks (ICCCN),*** *Hangzhou, China*, 2018, pp. 1-7. doi: 10.1109/ICCCN.2018.8487355

A. Sultangazin and P. Tabuada, "Towards the use of Symmetries to Ensure Privacy in Control Over the Cloud," ***2018 IEEE Conference on Decision and Control (CDC),*** *Miami Beach, FL*, 2018, pp. 5008-5013. doi: 10.1109/CDC.2018.8619510

A. Sultangazin, J. Kusmangaliyev, A. Aitkulov, D. Akilbekova, M. Olivero and D. Tosi, "Design of a Smartphone Plastic Optical Fiber Chemical Sensor for Hydrogen Sulfide Detection." ***IEEE Sensors Journal***, 17(21): 6935-6940, 2017. doi: 10.1109/JSEN.2017.2752717

SKILLS AND QUALIFICATIONS

Languages:
Russian – native
Kazakh and English – near-native
French – intermediate

Expertise:
Robotics and Control systems
Signal and Image Processing
Machine learning and Neural Networks
Communication systems
VHDL Design and VLSI Design

Programming languages and interfaces:
Robot Operating System (ROS) – proficient (4 yrs)
C/C++ – proficient (10+ yrs)
MATLAB/Simulink – proficient (10+ yrs)
Python – proficient (7 yrs)
CARLA – intermediate (2 yrs)
HTML – intermediate (2 yrs)
R – intermediate (2 yrs)

HONORS AND RECOGNITIONS

"Bolashak" International Scholarship for continued education	**2017**
"Altyn Belgi" (Golden medal) award for academic excellence	**2012**
2nd place in VII Eurasian National University Open Physics Olympiad	**2011**
2nd place in VII Mathematical Tournament in memory of Lee V. A.	**2010**
1st place in II International Open Science Olympiad in Astana	**2010**