

Nikita Gennadevich Lukhanin

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ADDRESS	2594 Hearst Ave, Berkeley, CA 94709	
CURRENT POSITION	Graduate Research Assistant University of California, Berkeley Sutardja Dai Hall	
EDUCATION	University of California, Berkeley Ph.D., Mechanical Science and Engineering M.S., Mechanical Science and Engineering Advisor: Liwei Lin	Expected: May 2025, May 2028
	University of Illinois at Urbana-Champaign B.S., Mechanical Science and Engineering (Highest Honors) (https://youtu.be/I38WJyR9AFc?t=246) Advisors: Joaquín Rodríguez-López & Charles Schroeder	May 2023
	College of DuPage A.S., Engineering Science (High Honors)	May 2021
AWARDS AND DISTINCTIONS	National Science Foundation (NSF) Graduate Research Fellowship Awarded to roughly 1 out of every 7 entering doctoral students	2023
	Berkeley Fellowship Offered to highly qualified entering doctoral students	2023
	O. A. Leutwiler Award (https://mechse.illinois.edu/news/54258) Recipient determined upon scholarship, personal qualities, and professional and cultural activities	2023
	“Best Presentation” Gulf Coast Undergraduate Research Symposium (GCURS) Awarded to the best presentation within the Materials Science and NanoEngineering section	2022
	Beckman Undergraduate Fellowship (https://mechse.illinois.edu/news/47669) Award of \$3,000 given to 5 undergraduates a year for interdisciplinary research	2022
	James Scholar Honors distinction offered for maintaining a minimum of 3.5 GPA	2021
	ME 200 Most Valuable Player Award Awarded to students in thermodynamics that contribute to the class	2021
	Academic High Honors High honors distinction offered for maintaining a minimum of 3.5 GPA	2019
	Scholastic Gold Medal Award “Moon Rocks” Highest distinction in high school art competition	2019
	Scholastic Gold Medal Award “Bird House” Highest distinction in high school art competition	2018
PUBLICATIONS	<ol style="list-style-type: none">Lukhanin, N., Oh, I., Pence, M., Rodríguez, O., Rodríguez-López, J., Schroeder, C. The Electrolab: An Open-Source, Modular Platform for Automated Characterization of Redox-Active Electrolytes 2023 (Editor’s Choice) (https://www.cell.com/device/fulltext/S2666-9986(23)00155-2)Pence, M., Rodríguez, O., Lukhanin, N., Schroeder, C., Rodríguez-López, J. Automated Measurement of Electrogenenerated Redox Species Degradation Using Multiplexed Interdigitated Electrode Arrays <i>ACS Meas. Sci. Au</i> 2022 (https://pubs.acs.org/doi/10.1021/acsmesuresciau.2c00054)	

RESEARCH
POSITIONS

Rodríguez-López Laboratory

Champaign, IL

Undergraduate Research Assistant

October 2021-August 2023

Multiplexed Interdigitated Electrode Array

- Designed a low-current transducer for use between a working electrode and a current follower
- Created shielded multiplexer for use with microfabricated arrays for chemical characterization

FlexScope: Compliant Mechanism Based Scanning Electrochemical Microscope

- Invented a high-resolution compliant mechanism capable of nanometer level resolution
- Designed a 3-dimensional rigid stage that limits external vibration and noise
- Implemented scheduling algorithm on teensy platform to manage sensor and motor processes
- Developed a PID loop calibrated through Ziegler-Nichols method for noise reduction
- Engineered a 6.5-digit low-noise voltmeter under \$100 that interfaces through SPI and I2C

Electrolab: An Automated Electrochemical Characterization Platform

- Utilized KiCad to design an embedded system capable of managing, power, motors, and sensors
- Established motion planning through sequential device motion and a trapezoidal velocity profile

Schroeder Group

Champaign, IL

Undergraduate Research Assistant

October 2021-August 2023

Electrolab: An Automated Electrochemical Characterization Platform

- 3D printed microfluidic fluid manipulation traps capable of controlling a living cells motion
- Formalized a protocol on the microcontroller for higher level GUI and API communication

Electrolab Mini: A Droplet Based Automated Characterization Platform

- Redesigned HV SMPS, multiplexer, and software from the OpenDrop platform
- Modified droplet manipulation PCB to support FluoroPel coating and microfluidic pumps

INTERNSHIPS

SGS IBR Laboratories

Ann Arbor, MI

Automation Engineering Intern

June 2021-August 2021

- Conceived and built debris simulant mixing machine up to industry standards
- Designed an enclosed solenoid timing circuit for oil filter testing stands
- Automated cleanroom vacuum testing benefiting trial accuracies and repeatability
- Modeled high pressure air test stand accelerating current and future construction

LEADERSHIP
EXPERIENCE

College of DuPage Robotics Team

Glen Ellyn, IL

President

May 2020-June 2021

- Coordinated the design, software, and assembly of the rover for the NASA Lunabotics
- Established 3 business relationships for part fabrication while machine shops were closed
- Developed and led a virtually controllable sumo-bot outreach event for high-school students
- Conceptualized and 3D printed 6-foot robot arm with a differential manipulator

College of DuPage Engineering Club

Glen Ellyn, IL

Vice President

May 2020-June 2021

- Organized and ran Chicago inner-city outreach events to connect students with engineering
- Presented at annual Engineering Olympics competition to 250+ high-school students
- Managed \$30,000 towards club expenses, funding, and donations for robotics and outreach
- Directed class projects and discussions within engineering seminars in groups of 20+

CLUBS AND
SOCIETIES

Borscht Club (Member)

2023-Now

Cal Climbing (Member)

2023-2024

Air Bears (Member)	2023-2024
Russian Student Speaking Association (Member)	2023-Now
Illinois Triathlon Club (Member)	2022-2023
iRobotics (Member)	2022-2023
Ukrainian Student Association (Member)	2022-2023
American Society of Mechanical Engineers (Member)	2021-2023
American Chemical Society (Member)	2021-2023
Robotics Team (President)	2019-2021
Engineering Club (Vice President)	2019-2021

PRESENTATIONS AND TALKS	Undergraduate Research Symposium (University of Illinois, IL)	Spring 2023
	“High-Precision Compliant Mechanism for Use in Scanning Electrochemical Microscopy”	
	Gulf Coast Undergraduate Research Symposium (Rice University, TX)	Fall 2022
	“High-Precision Compliant Mechanism for Use in Scanning Electrochemical Microscopy”	
	Turkey Run Analytical Chemistry Conference (Turkey Run State Park, IN)	Fall 2022
	“High-Precision Compliant Mechanism for Scanning Electrochemical Microscopy”	
	Undergraduate Research Symposium (University of Illinois, IL)	Spring 2022
	“High-Precision Compliant Mechanism for Scanning Electrochemical Microscopy”	
	Engineering Olympics (College of DuPage, IL)	Fall 2020
	Outreach event for local high schoolers	

SKILLS

Computer Languages:

C++, Python, C, R, G Code, Bash, HTML

Applications:

Solidworks, MATLAB, Fusion 360, KiCad, Ansys, Mathematica, MS Office

Technologies:

3D Printing, CNC, Embedded Systems, Arduino, ESP, Teensy, ROS, Git, Jetson Xavier NX, IoT

Spoken Languages:

English, Russian, Ukrainian, Mandarin Chinese