Nikita Gennadevich Lukhanin

Contact

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Current Position

Graduate Student Researcher
University of California, Berkeley
Department of Mechanical Engineering

Address

Etcheverry Hall
2505 Hearst Ave, Berkeley, CA 94709

Education

University of California, Berkeley **Expected: May 2028**

Ph.D., Mechanical Engineering
Advisors: Liwei Lin and Grigory Tikhomirov

University of California, Berkeley **Expected: May 2026**

M.S., Mechanical Engineering
Advisors: Liwei Lin and Grigory Tikhomirov

University of Illinois at Urbana-Champaign **May 2023**

B.S., Mechanical Science and Engineering **Highest Honors**
Advisors: Joaquín Rodríguez-López, Charles Schroeder

College of DuPage **May 2021**

A.S., Engineering Science **High Honors**

Awards and Distinctions

- National Science Foundation (NSF) Graduate Research Fellowship *Awarded to roughly 1 out of every 7 entering doctoral students nationwide.* **2023**
- Berkeley Fellowship *Offered to highly qualified entering doctoral students at UC Berkeley.* **2023**
- O. A. Leutwiler Award *Recipient determined upon scholarship, personal qualities, and professional and cultural activities.* **2023**
- Best Presentation Award, Gulf Coast Undergraduate Research Symposium (GCURS) *Awarded to the best presentation within the Materials Science and NanoEngineering section.* **2022**
- Beckman Undergraduate Fellowship *Award of $3,000 given to five undergraduates per year for interdisciplinary research.* **2022**
- James Scholar *Honors distinction offered for maintaining a minimum GPA of 3.5.* **2021**
- ME 200 Most Valuable Player Award *Awarded to students in thermodynamics who contribute most to the class.* **2021**
- Academic High Honors *High honors distinction offered for maintaining a minimum GPA of 3.5 for at least 3 semesters.* **2019**
- Scholastic Gold Medal Award "Moon Rocks" *Highest distinction in a national high school art competition.* **2019**
- Scholastic Gold Medal Award "Bird House" *Highest distinction in a national high school art competition.* **2018**

Positions

1. Graduate Student Researcher **Fall 2023 - Present**
   Affiliation: *University of California, Berkeley; Department of Mechanical Engineering*
   Advisor(s): Liwei Lin, Grigory Tikhomirov
2. Undergraduate Research Assistant **October 2021 - August 2023**
   Affiliation: *University of Illinois at Urbana-Champaign; Rodríguez-López Laboratory; Schroeder*

Group
Advisor(s): Joaquín Rodríguez-López, Charles Schroeder

3. Automation Engineering Intern **June 2021 - August 2021**
SGS IBR Laboratories; Project: Automation and test system development

Students

Please see http://lukhanin.net/ for information on my awesome students.

Student Award Highlights: Divij Muthu (Accepted to present at GCURS), Sean Isomatsu (Accepted to present at GCURS; Haas Scholars), Kang Wang (Accepted to the 2025 BMES Annual Meeting)

Master of Engineering Students:

1. Abbie He (*University of California, Davis*) **Sep 2025 – Present**
2. Di Tian (*Northeastern University*, **China**) **Sep 2025 – Present**
3. Mindy Yao (*Georgia Institute of Technology*) **Sep 2025 – Present**
4. Shiva Annamaneni (*University of California, Riverside*) **Sep 2025 – Present**
5. Linda Liu (*Northwestern University*) **Sep 2025 – Present**
6. Ryan Johnson (*University of California, Davis*) **Sep 2025 – Present**
7. Suraj Reddy Chamakura (*Indian Institute of Technology Madras*, **India**) **Sep 2025 – Present**
8. Tofic Esses (*McGill University*, **Canada**) **Sep 2025 – Present**
9. Emory Adelman (*San Francisco State University*) **Sep 2025 – Present**
10. Alex Haynes (*Virginia Tech*) **Sep 2025 – Present**
11. Romain Paul Ting (*University of Southern California*) **Sep 2025 – Present**
12. Alexander Crary (*California Poly, San Luis Obispo*) **Sep 2025 – Present**

Undergraduate Students:

1. Kirill Vasilev (*UC Berkeley*) **Oct 2025 – Present**
2. Claire Lin (*UC Berkeley*) **May 2025 – Present**
3. Akshay Shivkumar (*UC Berkeley*) **May 2025 – Present**
4. Mia Wang (*UC Berkeley*) **Apr 2025 – Present**
5. Divij Muthu (*UC Berkeley*) **Apr 2025 – Present**
6. Carsten Zieger (*UC Berkeley*) **Mar 2025 – Present**
7. Yucheng Yang (*UC Berkeley*) **Mar 2025 – Present**
8. Erin Kwon (*UC Berkeley*) **Mar 2025 – Present**
9. Kabeer Nayyar (*UC Berkeley*) **Mar 2025 – Present**
10. Kang Wang (*The Chinese University of Hong Kong*, **China**) **Feb 2025 – Oct 2025**
11. Sean Ryota Isomatsu (*UC Berkeley*) **Sep 2024 – Present**
12. Keming Bai (*Hebei University of Technology*, **China**) **Jul 2024 – Jul 2025**

Industry

1. Automation Engineering Intern **(Ann Arbor, MI)** **Summer 2021**
SGS IBR Laboratories; Project: Lab-wide automation

Volunteer

1. Organizer **2020**
   PODER Program, Chicago
2. Speaker, Organizer **2020**
   Engineering Olympics, Glen Ellyn
3. Coordinator **2019**
   Homeschool Outreach, Glen Ellyn
4. Aid **2019**
   Boy Scouts of America, Glen Ellyn

Peer-Reviewed Papers

1. I. Oh*, M. Pence*, **N. G. Lukhanin***, O. Rodríguez*, J. Rodríguez-López, C. Schroeder. "The Electrolab: An Open-Source, Modular Platform for Automated Characterization of Redox-Active Electrolytes". *Device (**Device**)*, 2023. **Editor's Choice**
2. M. Pence, O. Rodríguez, **N. G. Lukhanin**, C. Schroeder, J. Rodríguez-López. "Automated Measurement of Electrogenerated Redox Species Degradation Using Multiplexed Interdigitated Electrode Arrays". *ACS Measurement Science Au (**ACS Meas. Sci. Au**)*, 2022.

Conference Papers

1. **N. G. Lukhanin**, D. Muthu, C. Gu, M. Teng, K. Behrouzi, C. Chen, L. Waller, L. Lin. "3D Imaging via Four pMUT Receivers by Compressed Sensing". *Proceedings of the IEEE International Conference on Micro Electro Mechanical Systems (**MEMS**)*, 2026.
2. **N. G. Lukhanin**, K. Bai, K. Wang, M. Wang, D. M. Fitzgerald, G. Tikhomirov, L. Lin. "Ultra-Sensitive Nanosensor for Rapid Detection of PFAS in Simulated Drinking Water". *Proceedings of the IEEE International Conference on Micro Electro Mechanical Systems (**MEMS**)*, 2026.
3. D. M. Fitzgerald, Y. Xie, S. Isomatsu, **N. G. Lukhanin**, Z. Wang, L. Lin. "An Acoustic Touch-Motion Button with Haptic Function via an In-Situ Fabricated Elastomeric Lens Atop pMUTs". *Proceedings of the IEEE International Conference on Micro Electro Mechanical Systems (**MEMS**)*, 2026.
4. J. H. Park, P. He, S. K. Ghosh, F. Xia, **N. G. Lukhanin**, J. Zhai, R. D. Rundle, L. Lin. "Moisture-Induced Energy Harvesters by Water Harvesting for Continuous Arid Environment Operations". *Proceedings of the 23rd International Conference on Solid-State Sensors, Actuators and Microsystems (**Transducers**)*, 2025.
5. Y. Ma, **N. G. Lukhanin**, E. Wang, K. Y. Shum, Y. Du, L. Lin, X. Guan. "LiGO: LLM-Enhanced Iterative Graphic Optimization for Large Field-of-View Underwater 3D Reconstruction". *Proceedings of SPIE: AI and Optical Data Sciences VI (**SPIE**)*, 2025.
6. **N. G. Lukhanin**, F. Xia, S. Isomatsu, M. Teng, B. Jiang, J.-D. Zanone, L. Lin. "Biological Bone Age Assessment Via pMUTs". *Proceedings of the IEEE International Conference on Micro Electro Mechanical Systems (**MEMS**)*, 2025.

Unreviewed Papers

1. J. H. Park, P. He, **N. G. Lukhanin**, S. K. Ghosh, S. Park, R. D. Rundle, L. Lin. "Moisture-Induced Electrical Energy Generation by Harvesting Atmospheric Water in Arid Environments". *Nano Energy (**Nano Energy**)*, 2025. **Manuscript under review**
2. **N. G. Lukhanin**, M. Wang, K. Wang, C. Zieger, K. Bai, W. Yue, L. Lin. "YBCO-Based Superconducting Micro/Milli-Robotic Systems". *Hilton Head Workshop on Solid-State Sensors, Actuators, and Microsystems (**Hilton Head**)*, 2026. **Submitted**
3. **N. G. Lukhanin**, K. Wang, C. Lin, K. Bai, D. M. Fitzgerald, G. Tikhomirov, L. Lin. "Sweat Analysis via AI-Powered Electrochemical Impedance Spectroscopy During Exercise". *Hilton Head Workshop on Solid-State Sensors, Actuators, and Microsystems (**Hilton Head**)*, 2026. **Submitted**
4. D. M. Fitzgerald, **N. G. Lukhanin**, S. Isomatsu, Y. Xie, H. Deng, K. Nakamura, S. Trolier-McKinstry, L. Lin. "Wearable pMUT Array for Multi-Target Transcranial Neuromodulation via Ultrasound". *Hilton Head Workshop on Solid-State Sensors, Actuators, and Microsystems (**Hilton Head**)*, 2026. **Submitted**

5. **N. G. Lukhanin**, K. Bai, K. Wang, M. Wang, D. M. Fitzgerald, G. Tikhomirov, L. Lin. "Ultra-Sensitive Nanosensor for Rapid Detection of PFAS in Drinking Water". *In Preparation (-)*, 2026. **In Progress**
6. **N. G. Lukhanin**, D. Muthu, M. Teng, C. Chen, M. Sedky, L. Lin. "3D Imaging via pMUTs by Compressed Sensing". *In Preparation (-)*, 2026. **In Progress**

Selected Press

1. "O. A. Leutwiler Award." University of Illinois Department of Mechanical Science and Engineering. [Article link].
2. "Beckman Undergraduate Fellowship." Beckman Institute for Advanced Science and Technology. [Article link].
3. "Scholastic Art & Writing Awards – Visual Arts Honors." North Fine Arts. [Article link].

Selected Posters

1. Ultra-Sensitive Nanosensor for Rapid Detection of PFAS in Simulated Drinking Water.
   MEMS 2026, Salzburg, Austria (Spring 2026)
   BSAC, Berkeley CA (Fall 2025)
2. Biological Bone Age Assessment via pMUTs.
   BSAC, Berkeley, CA (Spring/Fall 2025)
   MEMS 2025, Kaohsiung (Spring 2025)
   BSAC, Berkeley CA (Fall 2024)
3. High-Precision Compliant Mechanism for Use in Scanning Electrochemical Microscopy.
   Turkey Run Analytical Chemistry Conference, Turkey Run State Park, IN (Fall 2022)
   Undergraduate Research Symposium, University of Illinois, IL (Spring 2022)

Selected Talks

1. 3D Imaging via Four pMUT Receivers by Compressed Sensing.
   MEMS 2026, Salzburg, Austria (Spring 2026)
2. High-Precision Compliant Mechanism for Use in Scanning Electrochemical Microscopy.
   Undergraduate Research Symposium, University of Illinois, IL (Spring 2023)
   Gulf Coast Undergraduate Research Symposium, Rice University, TX (Fall 2022)
3. Engineering Olympics Outreach Demonstration.
   Engineering Olympics, College of DuPage, IL (Fall 2020)

Know-How

Computer Languages: Experience with systems, scripting, scientific computing, and embedded programming languages, with emphasis on hardware-interfacing, numerical analysis, and experimental automation.
C++, Python, C, R, G Code, Bash, HTML
Applications: Engineering and scientific software for mechanical design, simulation, data analysis, and circuit development.
SolidWorks, MATLAB, Fusion 360, KiCad, Ansys, Mathematica, MS Office
Technologies: Hands-on experience with rapid prototyping, embedded platforms, robotics middleware, and version-controlled development workflows.
3D Printing, CNC, Embedded Systems, Arduino, ESP, Teensy, ROS, Git, Jetson Xavier NX, IoT
Nanolab Technologies: Cleanroom and nanofabrication tools for micro- and nanoscale device fabrication and characterization.
Evaporation, Sputtering, HF Etch Release, Surface Contact Angle Measurement, SEM, AFM, Wirebonding
Spoken Languages: Fluent and working proficiency in multiple spoken languages.
English, Russian, Ukrainian, Mandarin Chinese

Etc.

Please see http://lukhanin.net for other information.