

ARMIN DARVISH

Lead Scientist

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San Francisco Bay Area



"Effective, focused, goal-driven scientist with a broad background in multidisciplinary science and technology and years of experience in single-molecule biosensing platforms. Enjoys working within multidisciplinary teams and find fast-paced and high-risk, high-reward situations very inspiring."

EXPERIENCE

Lead Scientist

Robert Bosch LLC.

Oct 2019 – Ongoing Sunnyvale, CA

At Bosch, I am a scientist in the "Bioelectronics" team within the Corporate R&D organization. We design novel biosensors and take them from early stage proof-of-concept to the productization phase before handing them off to other business units within Bosch. My focus has been platform development and integration based on novel nanobiosensors for single-molecule applications and point-of-care diagnostics. I perform a wide range of tasks from project management to supervising interns as well as technical contribution such as hands-on engineering, experimental design and execution, and data analysis.

Nanosensors Multidisciplinary Research
Industry-Academia Partnership Project Management

Senior Scientist

Quantapore Inc.

Jul 2018 – Oct 2019 Menlo Park, CA

Had a broad range of responsibilities covering development and optimization of Quantapore's nanopore-based sequencing technology. This involved process development and integration for chip design and manufacturing, as well as running sequencing experiments to optimize the overall platform.

Nanopores DNA Sequencing System Integration
Opto-Electrical Engineering

Nanopore Engineer

Two Pore Guys Inc. (later operating as Ontera Inc.)

Jul 2016 – Jul 2018 Santa Cruz, CA

Worked within a team of scientists and engineers with a broad range of responsibilities falling under system design. I was the project lead for transferring Ontera's biosensor from lab-scale proof-of-concept to mass-scale production, as well as implementing quality control and testing. This included interfacing with production partners for process transfer. I was a key player in enabling series A funding at Two Pore Guys.

Nanopores Molecular Diagnostics
Process Development and Transfer Statistical Process Control
System Integration

SKILLS

Multi-Disciplinary Research
Engineering Technology Scouting
Project Management
Nano | Biosensors
DNA Sequencing Technology
Molecular Diagnostics
Single-Molecule Studies
Electro-Optical Measurements
Materials Science
Process Development | Transfer
Micro | Nanofabrication Programming
Molecular Biochemistry
Multiphysics Modeling
Python MATLAB Git/GitHub
Emacs Org-mode Latex

EDUCATION

PhD in Biomedical Engineering

Drexel University

2016 Philadelphia, PA

Electrodeformation in solid-state nanopores for characterization of nanoscale vesicles and viruses

Ms.C. in Biomedical Engineering

Drexel University

2012 Philadelphia, PA

Synthesis and Functionalization of Gold Nanoclusters with HIV attachment inhibitors

Bs.C. in Biomedical Engineering

Amirkabir University of Technology

2012 Tehran, Iran

Synthesis and Characterization Gd-containing Layered Nanohydroxide Particles as MRI Contrast Agents

PUBLICATIONS

Patents

- Y. S. Shin, N. Fomina, C. Johnson, **A. Darvish**, C. Lang, “Measuring ion strength using closed-loop electrochemical pH modulation,” U.S. Patent 20220268729A1, Aug. 25, 2022.
 - Y. S. Shin, N. Fomina, C. Johnson, **A. Darvish**, E. Papageorgiou, C. Lang, “Closed-loop pH control with differential sensor,” U.S. Patent 20220018806A1, Jan. 20, 2022.
 - C. Johnson, S. Kavusi, N. Fomina, H. Ahmad, A. Maruniak, C. Lang, A. Raghunathan, Y. S. Shin, **A. Darvish**, E. Papageorgiou, “Electronic control of the pH of a solution close to an electrode surface,” U.S. Patent 20200363371A1, Nov. 19, 2020.
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Journal Articles

- **A. Darvish**, J. S. Lee, B. Peng, J. Saharia, R. VenkatKalyana Sundaram, G. Goyal, N. Bandara, C. W. Ahn, J. Kim, P. Dutta, “Mechanical characterization of HIV-1 with a solid-state nanopore sensor,” *Electrophoresis*, vol. 40, no. 5, pp. 776–783, 2019.
 - J. S. Lee, J. Saharia, Y. N. D. Bandara, B. I. Karawdeniya, G. Goyal, **A. Darvish**, Q. Wang, M. J. Kim, M. J. Kim, “Stiffness measurement of nanosized liposomes using solid-state nanopore sensor with automated recapturing platform,” *Electrophoresis*, vol. 40, no. 9, pp. 1337–1344, 2019.
 - J. Ali, U. K. Cheang, **A. Darvish**, H. Kim, M. J. Kim, “Biotemplated flagellar nanoswimmers,” *Appl Materials*, vol. 5, no. 11, p. 116 106, 2017. DOI: 10.1063/1.5001777.
 - **A. Darvish**, G. Goyal, R. Aneja, R. V. Sundaram, K. Lee, C. W. Ahn, K.-B. Kim, P. M. Vlahovska, M. J. Kim, “Nanoparticle mechanics: Deformation detection via nanopore resistive pulse sensing,” *Nanoscale*, vol. 8, no. 30, pp. 14 420–14 431, 2016. DOI: 10.1039/C6NR03371G.
 - G. Goyal, Y. B. Lee, **A. Darvish**, C. W. Ahn, M. J. Kim, “Hydrophilic and size-controlled graphene nanopores for protein detection,” *Nanotechnology*, vol. 27, no. 49, p. 495 301, 2016. DOI: 10.1088/0957-4484/27/49/495301.
 - G. Goyal, **A. Darvish**, M. J. Kim, “Use of solid-state nanopores for sensing co-translocational deformation of nano-liposomes,” *Analyst*, vol. 140, no. 14, pp. 4865–4873, 2015. DOI: 10.1039/C5AN00250H.
 - G. Goyal, R. Mulero, J. Ali, **A. Darvish**, M. J. Kim, “Low aspect ratio micropores for single-particle and single-cell analysis,” *Electrophoresis*, vol. 36, no. 9-10, pp. 1164–1171, 2015. DOI: 10.1002/e1ps.201400570.
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Conference Proceedings

- G. Goyal, **A. Darvish**, M. J. Kim, “Controlled shrinking of nanopores in single layer graphene using electron beam irradiation,” in *Proceedings of TAS 2014 Conference, San Antonio, USA*, pp. 1838–1840.
 - J. I. Choi, H. S. Kim, Y. S. Shin, C. Johnson, N. Fomina, **A. Darvish**, C. Lang, S. S. Jang, “Electron Transport Characteristics through Ferrocene in Aqueous Solution: Density Functional Theory – Non-Equilibrium Green Function Approach,” presented at the 242nd ECS Meeting (October 9-13, 2022), ECS, Oct. 10, 2022.
 - **A. Darvish**, G. Goyal, M. Kim, “Sensing, capturing, and interrogation of single virus particles with solid state nanopores,” in *Advances in Global Health through Sensing Technologies 2015*, vol. 9490, SPIE, 2015, pp. 86–92.
 - S. Shafiei, Z. T. Birgani, **A. Darvish**, M. S. Azimi, M. Solati-Hashjin, “Layered double hydroxides for diagnostic applications,” in *International Congress of Evaluation of Medical Diagnosis Modern Technologies*, 2008, pp. 1–16.
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Thesis

- **A. Darvish**, “Electrodeformation in Solid-State Nanopores and its Application for Characterization of Nanoscale Vesicles and Viruses,” Doctor of Philosophy, Drexel University, May 2016. DOI: 10.17918/etd-7797.