

# ARMIN DARVISH

## Lead Scientist

www.armindarvish.com    @ armindarvish@gmail.com    +1 703 477 006  
armindarvish    adarvish    @Armin\_\_Darvish

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 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

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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

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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

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## 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,” *Apl 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.