

TRAN NGOC HUYEN NGUYEN, Ph.D.

Curriculum Vitae

Department of Bioengineering
3720 15th Ave NE
University of Washington
Seattle, WA

10215 Greenwood Ave N, S504
Seattle, WA, 98133
Phone: 1.714.399.6276
Email: nguyennhtran@gmail.com

EDUCATION

- 2020 Ph.D. in Biomedical Engineering
Weldon School of Biomedical Engineering, Purdue University
- Advisors: Hugh Lee, Muhammad Ashraful Alam, Riyi Shi, and Jenna Rickus
- 2013 B.S. in Chemical Biology
College of Chemistry, University of California, Berkeley

PROFESSIONAL EXPERIENCE

- 2020-Present Postdoctoral Fellow in Bioengineering,
University of Washington
- Advisor: Albert Folch

FELLOWSHIPS & AWARDS

- 2024 Chemical and Biological Microsystems Society Travel Grant
- 2024 The Rising Stars in Engineering in Health
- 2023 The Mistletoe Research Fellowship, Momental Foundation
- 2023 Interdisciplinary Postdoctoral Fellowship in Cancer Research, University of Washington & Fred Hutch Cancer Center
- 2023 Asian Deans' Forum, Rising Stars Women in Engineering, University of Tokyo
- 2023 Excellence in Research & Translation Postdoctoral Award, Department of Bioengineering, University of Washington
- 2022 NextProf Nexus, Faculty Development Workshop, UC Berkeley
- 2021 Catalytic Collaboration Trainee Award, Brotman Baty Institute, Seattle
- 2020 Washington Research Foundation | Postdoctoral Fellowship – Finalist
- 2018 Ronald W. Dollens Scholarship, Purdue University
- 2015 Lynn Fellowship, Weldon School of Biomedical Engineering, Purdue University

Peer Reviewed Journal Articles

- 2024 **T. N. H. Nguyen**, L. Horowitz, *T. Krilov, E. Lockhart, H. L. Kenerson, T. S. Gujral, R. S. Yeung, N. Arroyo-Currás, and A. Folch. “Label-Free, Real-time Monitoring of Cytochrome C Drug Responses in Microdissected Tumor Biopsies with a Multi-Well Aptasensor Platform”, *Science Advances*, **10**: 6 (2024).
- 2024 E. Lockhart, L. F. Horowitz, A. Rodríguez, S. Zhu, **T. N. H. Nguyen**, M. Mehrabi, T. S. Gujral, and A. Folch. Drug testing of monodisperse arrays of live microdissected tumors using a valved multiwell microfluidic platform. *Lab Chip*, **24**, 2683–2699 (2024).
- 2020 **T. N. H. Nguyen**, X. Jin, J. Nolan, *Y. Wang, *S. Lam, M. A. Alam, H. Lee. “Printable Nonenzymatic Glucose Biosensors Using Carbon Nanotube-PtNP Nanocomposites Modified with AuRu for Improved Selectivity”, *ACS Biomaterials Science & Engineering*, **6**: 5315–5325 (2020).
- 2020 Y. Sun, **T. N. H. Nguyen (Co-First Author)**, A. Anderson, X. Cheng, T. E. Gage, J. Lim, Z. Zhang, H. Zhou, F. Rodolakis, F. Zhang, Z. Arslan, S. Ramanathan, H. Lee, and A. A. Chubykin. “In vivo glutamate sensing inside the mouse brain with perovskite nickelate-nafion heterostructures”, *ACS Applied Materials & Interfaces*, **12**: 24564–24574 (2020).
- 2020 **T. N. H. Nguyen**, J. Nolan, X. Cheng, H. Park, *Y. Wang, *S. Lam, H. Lee, S. J. Kim, R. Shi, A. A. Chubykin, and H. Lee. “Fabrication and Ex Vivo Evaluation of Activated Carbon-Pt Microparticles Based Glutamate Biosensor”, *Journal of Electroanalytical Chemistry*, **866**: 114136 (2020).
- 2019 **T. N. H. Nguyen**, J. Nolan, H. Park, *S. Lam, M. Fattah, J. Page, H-E. Joe, M. B. G. Jun, H. Lee, S. J. Kim, R. Shi, and H. Lee. “Facile Fabrication of Flexible Glutamate Biosensor using Direct Writing of Platinum Nanoparticles-based Nanocomposite”, *Biosensors and Bioelectronics*, **131**: 257-266 (2019).
- 2019 J. Nolan, **T. N. H. Nguyen**, *KVH. Le, LE. Delong, and H. Lee. “Simple Fabrication of Flexible Biosensor Arrays Using Direct Writing for Multianalyte Measurement from Human Astrocytes”, *Slas Technology: Translating Life Sciences Innovation*, **25**: 33-46 (2019).
- 2019 J. Nolan, **T. N. H. Nguyen**, M. Fattah, J. Page, R. Shi, and H. Lee. “Ex vivo Electrochemical Measurement of Glutamate Release during Spinal Cord Injury”, *MethodsX*, **6**: 1894-1900 (2019).
- 2018 Q. Yang, H. Park, **T. N. H. Nguyen**, J. F. Rhoads, A. Lee, R. T. Bentley, J. W. Judy, H. Lee. “Anti-biofouling Implantable Catheter using Thin-film Magnetic Microactuators”, *Sensors and Actuators B: Chemical*, **273**: 1694-1704 (2018).

2017 G. R. Dunn, N. R. N. Barzegar, W. N. Shi, J. N. M. Belling, **T. N. H. Nguyen**, E. Barkovich, K. Chism, M.R. Deweese, A. Zettl, K. Shen, and M. M. Maharbiz. “Selective Insulation of Carbon Nanotubes”, *Physica Status Solidi (B) Basic Research*, **254**: 1700202 (2017).

In Submission

T. N. H. Nguyen, L. Horowitz, *B. Nguyen, *T. Krilov, S. Zhu, E. Lockhart, T. S. Gujral, and A. Folch. “Microfluidic Modulation of Microvasculature in Microdissected Tumors”, bioRxiv ([/doi.org/10.1101/2024.09.26.615278](https://doi.org/10.1101/2024.09.26.615278)).

N. Gottshall, R. I. Stepanov, A. Ahmadianyazdi, D. Sinha, E. Lockhart, **T. N. H. Nguyen**, S. Hassan, L. Horowitz, R. Yeung, T. S. Gujral, A. Folch. Horowitz, L. R. “Micromanipulation of Live Microdissected Tissues with a Low-Coast Integrated Robotic Platform”, bioRxiv ([/doi.org/10.1101/2024.03.21.58616](https://doi.org/10.1101/2024.03.21.58616)).

L. Horowitz, R. Rodriguez-Mias, S. Li, N. Gottshall, I. Stepanov, C. Stiles, **T. N. H. Nguyen**, E. Lockhart, R. S. Yeung, J. Villen, T. S. Gujral, and A. Folch. “Microdissected Tumor Cuboids: a Microscale Cancer Model that Maintains a Complex Tumor Microenvironment”, bioRxiv ([/doi.org/10.1101/2024.03.22.586189](https://doi.org/10.1101/2024.03.22.586189)).

In Preparation

T. N. H. Nguyen, *T. Krilov, L. Horowitz, H. L. Kenerson, R. S. Yeung, N. Arroyo-Currás, and A. Folch. “Real-time Monitoring of Interleukin-6 and Interferon Gamma Drug Response from Microdissected Tumor Slices Using a Multi-Well Aptasensors Platform.”

CONFERENCE ACTIVITY (*UNDERGRADUATE MENTEE)

Abstract & Presentations

- 2024 **Nguyen, T. N. H.**, Horowitz, L. F., *Nguyen, B., Gujral. T. S., and Folch. A. Microfluidic Modulation of Tumor Microvasculature in Micro-dissected Cancer Tissues. *Biomedical Engineering Society*, Baltimore, Maryland, 23-26 Oct. (Oral Presentation)
- 2024 **Nguyen, T. N. H.**, Horowitz, L. F., *Nguyen, B., Gujral. T. S., and Folch. A. Microfluidic Modulation of Tumor Microvasculature in Micro-dissected Cancer Tissues. *Miniaturized Systems for Chemistry and Life Sciences*, Montreal, Canada, 13-17 Oct. (Poster Presentation)
- 2024 **Nguyen, T. N. H.**, Horowitz, L. F., *Nguyen, B., Gujral. T. S., and Folch. A. Microfluidic Modulation of Tumor Microvasculature in Micro-dissected Cancer Tissues. *3rd Microphysiological Systems World Summit*, Seattle, Washington, 10-14 May. (Poster Presentation)
- 2024 **Nguyen, T. N. H.**, Horowitz, L. F., *Nguyen, B., Gujral. T. S., and Folch. A. A Microfluidic Platform to Preserve Micro-dissected Tumor Microvasculature. *Fifth Annual Cascadia Regenerative Medicine Symposium*, Vancouver, British Columbia, 18-19 Jan. (Oral Presentation)

- 2023 **Nguyen, T. N. H.**, Horowitz, L. F., Arroyo-Currás, N., and Folch. A. Electrochemical Measurement of Cytochrome c Release from Microdissected Cancer Tissues. *Biomedical Engineering Society*, Seattle, Washington, 11-14 Oct. (Oral Presentation)
- 2023 Horowitz, L. F., **Nguyen, T. N. H.**, Lockhart, E., Rodriguez, R., Lim, C. B., Kenerson, H., Villen, Judit., Yeung, R., Gujral. T. S., and Folch. A. Microdissected “cuboids” as a model system for cancer drug testing. *Biomedical Engineering Society*, Seattle, Washington, 11-14 Oct. (Poster Presentation)
- 2023 **Nguyen, T. N. H.**, Horowitz, L. F., *Nguyen, B., Rodriguez, A. D., Lim, C. B., Mehrabi, M., Gujral. T. S., and Folch. A. Modulation of the Tumor Microvasculature in Micro-dissected Cancer Tissues using a Microfluidic Drug Testing Platform. *Institute for Stem Cell & Regenerative Medicine, 2023 Stem Cell Mini Symposium*, Seattle, Washington, 25 May. (Oral Presentation)
- 2023 **Nguyen, T. N. H.**, Horowitz, L. F., *Krilov, T., *Lim, R., Rodriguez, A. D., Lim, C. B., D. T., Gujral. T. S., Arroyo-Currás, N., and Folch. A. Local Electrochemical Measurement of Cyt C Release from Microfluidic Arrays of Micro-dissected Cancer Tissues. *SELECTBIO, Innovations in Microfluidics 2023, 3D-Printing and 3D-Tissue*, Seattle, Washington, 4-5 May. (Oral Presentation)
- 2022 Nguyen, B*, **Nguyen, T. N. H.**, Horowitz, L. F., Rodriguez, A. D., Lim, C. B., Mehrabi, M., Gujral. T. S., and Folch. A. A Microfluidic Platform to Preserve Micro-dissected Tumor Microvasculature. *Miniaturized Systems for Chemistry and Life Sciences*, Hangzhou, China, 23-27 Oct. (Oral Presentation)
- 2021 **Nguyen, T. N. H.**, Horowitz, L. F., Rodriguez, A. D., Mehrabi, M., Schwartz, D. T., and Folch. A. Detection of Cytochrome C from Micro-dissected Tumors in Microfluidic Arrays using Aptamer-based Electrochemical Sensors. *Miniaturized Systems for Chemistry and Life Sciences*, Palm Springs, California, 10-14 Oct. (Poster Presentation)
- 2018 **Nguyen, T.**, *Lam, S., Park, H., Shi, R., and Lee. H. Development of Flexible Glutamate Biosensor using Activated Carbon–Pt Microparticle Composite Ink. *Proceedings of IEEE Sensors*, New Delhi, India, 28 Oct. (Oral Presentation)
- 2017 **Nguyen, T.**, Park, H., Shi, R., and Lee. H. Rapid Prototyping of Microscale and Flexible Electrochemical Biosensor using Direct Writing. *39th Annual International Conference of the IEEE Engineering in Medicine and Biology Society*, Jeju Island, Korea, 15 July. 2017. (Oral Presentation)
- 2016 Yang, Q., **Nguyen, T.**, Liu, C., Miller, J., Rhoads, J. F., Linnes, J., and Lee, H. Polyimide-Based Magnetic Microactuators for Biofouling Removal. *Proceedings of 38th Annual International Conference of the IEEE Engineering in Medicine and Biology Society*, Orlando, Florida, 16 Aug. (Oral Presentation)

2016 **Nguyen, T.**, Linnes, J., and Lee, H. Removal Capabilities of Polyimide-Based Magnetic Microactuators. *Biomedical Engineering Society Annual Meeting*, Minneapolis, Minnesota, 7 Oct. 2016. (Poster Presentation)

PATENT APPLICATIONS

1. “Integrated Electrochemical Aptasensors for Measuring Cell Death and Cytokine activity from Intact Tissue Samples” US Patent Application 18/652,334 filed 5/01/2024. A Folch, **TNH Nguyen**, L Horowitz, N Arroyo.
2. “Direct Electron Transfer Glutamate Biosensor Using Platinum Nanoparticle and Carbon Nanotubes” US Patent Application 17/625,262 filed 6/7/2020. H Lee, **TNH Nguyen**.

RESEARCH EXPERIENCE

2020-Present. Folch Lab, Department of Bioengineering,
University of Washington

- Advisor: Albert Folch
- Research: Integrating electrochemical biosensors platform for drug screening using microdissected tumors and perfusing and preserving microvasculature of microdissected tissues.

2015-2020 Laboratory of Implantable Microsystem Research, Weldon School of Biomedical Engineering
Purdue University

- Advisor: Hyowon Lee
- Dissertation: Printable Electrochemical Biosensors for Detection of Neurotransmitter and Other Biological Molecules.

2012-2014 Zettl Group, Physics Department,
UC Berkeley

- Advisor: Alex Zettl
- Research: Application of multiwalled carbon nanotubes as a non-destructively electrochemical neural probe for biological systems.

2014 Maharbiz Group, EECS Department,
UC Berkeley

- Advisor: Michel Maharbiz
- Research: Supported testing microelectrode arrays for neural recording and examining the action potential's mechanical properties.

2013 Knight Lab, Cognitive Neuroscience Research Laboratory, Psychology Department
UC Berkeley

- Advisor: Robert T. Knight

- Research: Explored using an electroencephalogram to record brainwave signals during imagined speech to identify the signal's originated area.

TEACHING EXPERIENCE

University of Washington, Co-Instructor

Working in Science Education (STEP-WISE) Scholar
 BIOL 495 - Biology, Technology, and Ethics of Personalized Medicine (Winter 2023)

University of Washington, Invited Guest Lecturer

BIOEN 299 - Introduction to Bioengineering (Spring 2024)

Purdue University, Teaching Assistant

BME 21000 - Biomolecules: Structure, Function, and Engineering Applications (Fall 2019, Fall 2017)
 BME 48901 - Senior Design Project (Fall 2016)

UNDERGRADUATES MENTORED

On going

Krilov T. 2022. Multiplex system development and implementation of aptasensor technology for real-time tumor drug monitoring.

Nguyen B. 2021. Image data analysis using IMARIS: modulation of tumor microvasculature in microdissected cancer tissues. (2024 B.S Bioengineering). 2023 Husky 100. Bioinformatics Analyst at Fred Hutchinson Cancer Center.

Completed

Nguyen B. 2022. Circuit design for aptasensor systems

Gopal S. 2021. 3D-printed perfusion systems for microvasculature preservation in microdissected cancer tissues. (2022 B.S Bioengineering). 2022 Husky 100.

Lin R. 2021. 3D-printed electrochemical sensors for tissue culture data collection. (2021 B.S Bioengineering). Master Student at Columbia University.

Le KVH. 2018. Data collection on flexible biosensor arrays for analytes measurement.

Wang Y. 2017. Fabrication and evaluation of carbon nanotube-PtNP modified glucose and glutamate biosensors. (2018 B.S Biomedical Engineering). Master Student at Duke University.

Lam S. 2017. Fabrication of flexible glutamate and glucose biosensors: evaluation and data collection in sensor development. (2019 B.S Neuroscience). Ph.D. student at University of Pittsburg.

PROFESSIONAL SERVICE

To University

Women in Engineering, Weldon School of Biomedical Engineering, *Purdue University*. (2016 – 2019)

- Graduate Woman Gathering Ambassador, promoting fellowship and support among women in engineering.

Office of Interdisciplinary Graduate Program, *Purdue University*. (2016 – 2018)

- Interdisciplinary Graduate Program Student Advisory Board Member.
- Facilitated cross-department collaboration and engagement among graduate students, enhancing communication and resources within the Interdisciplinary Biomedical Sciences program.
- Planned the annual Interdisciplinary Spring Reception and participated in Social Justice Seminars to foster inclusivity and networking opportunities.

Introduce a Girl to Engineering Day Volunteer, *Purdue University*. (2016, 2017)

- Organized and facilitated a one-day event featuring hands-on engineering activities, mentorship, and informational sessions for high school freshmen and sophomores as part of National Engineer's Week.

Nanoday at the Birck Nanotechnology Center Volunteer, *Purdue University* (2016, 2017, 2018)

- Led interactive nanotechnology demonstrations and activities for K-12 students, introducing over 300 students to the science of nanotechnology and fostering engagement through hands-on experiences with advanced research equipment.

To Community

Program Instructor, Women in Engineering Program, *Purdue University*. (2016 – 2019)

- Imagination, Innovation, Discovery, and Design Program
- Hands on Engineering Activities, K-5 students

PROFESSIONAL ASSOCIATIONS

Biomedical Engineering Society, 2023-present

LANGUAGES

Vietnamese: native reading, writing, speaking

English: fluent reading, writing, speaking

REFERENCES

Albert Folch, Professor of Bioengineering
Department of Bioengineering, University of Washington
3720 15th Ave NE, Foege N430N
Seattle, WA 98103
(206) 685-2257 / afolch@uw.edu

Hyowon (Hugh) Lee, Professor of Biomedical Engineering
Weldon School of Biomedical Engineering, Purdue University
206 S Martin Jischke Dr, MJIS 2070
West Lafayette, IN 47907
(765) 496-2444 / hwlee@purdue.edu

Netzahualcóyotl Arroyo Currás, Professor of Pharmacology
Department of Pharmacology and Molecular Sciences
Johns Hopkins University School of Medicine
316 Hunterian Building
725 North Wolfe Street, Baltimore, MD 21205
netzarroyo@jhmi.edu

Muhammad Ashraful Alam, Jai N. Gupta Distinguished Professor
Elmore School of Electrical/Computer Engineering, Purdue University
207 S. Martin Jischke Dr, WANG 3051
West Lafayette, Indiana 47907-1971
(765) 494-5988 / alam@purdue.edu

Becca Price, Professor of Interdisciplinary Arts & Sciences
School of Interdisciplinary Arts & Sciences
University of Washington, Bothell
11136 NE 180th Street, Bothell, WA 98011-1713
(425) 352-3666 / beccap@uw.edu