Kateryna Voitiuk

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EDUCATION

University of California, Santa Cruz *2019 - 2024*
Ph.D. Biomolecular Engineering and Bioinformatics GPA: 4.0
Platforms for In Vitro Electrophysiology Experiments on the Internet of Things
Advisors: David Haussler, Mircea Teodorescu

University of California, Santa Cruz *2015 - 2019*
B.A. Network and Digital Technology GPA: 3.85
Graduated with Highest Honors in the major
University Honors: Magna Cum Laude

EXPERIENCE

Open Culture Science, Inc. *2024 - Present*
Chief Technology Officer, Cofounder

Product development of a cloud-connected microfluidic platform for tissue culture

Braingeneers (Haussler, Salama, Teodorescu Labs), UC Santa Cruz *2024 - Present*
Postdoctoral Researcher

Designing microfluidics for compound delivery to multi-electrode arrays

Braingeneers (Haussler, Salama, Teodorescu Labs), UC Santa Cruz *2019 - 2024*
Graduate Researcher

Developed custom electrophysiology, optogenetics, microfluidic devices and hardware
Developed generalized IoT device software and influenced the design of lab cloud infrastructure

Braingeneers (Haussler, Salama, Teodorescu Labs), UC Santa Cruz *2017 - 2019*
Undergraduate Researcher

Created mechanical components for automated biological imaging platform
Designed and manufactured plastic and ceramic 3D printed fluidic devices for organoid culture

Riedel-Kruse Lab, Stanford University *June - July 2015*
Robotics Research Intern

Created Lego pipetting robot designs with automated experiments for STEM curriculum
Demonstrated dilution gradient, fluid density, and droplet generation using Lego robot

PUBLICATIONS

Voitiuk, K., Seiler, S.T., Melo, M.P. de, Geng, J., Hernandez, S., Schweiger, H.E., Sevetson, J.L., Parks, D.F., Robbins, A., Torres-Montoya, S., Ehrlich, D., Elliott, M.A.T., Sharf, T., Haussler, D., Mostajo-Radji, M.A., Salama, S.R., Teodorescu, M., 2024. A feedback-driven IoT microfluidic, electrophysiology, and imaging platform for brain organoid studies. bioRxiv. https://doi.org/10.1101/2024.03.15.585237

Andrews, J.P., Geng, J., **Voitiuk, K.**, Elliott, M.A.T., Shin, D., Robbins, A., Spaeth, A., Wang, A., Li, L., Solis, D., Keefe, M.G., Sevetson, J.L., Jesus J.R., Donohue, K.H., Larson, H., Ehrlich, D., I. Auguste, K.I, Salama, S.R., Sohal, V., Sharf, T., Haussler, D., Cadwell, C.R., Schaffer, D.V., Chang, E.F., Teodorescu, M., Nowakowski, T.J., 2024. Multimodal evaluation of network activity and optogenetic

interventions in human hippocampal slices. Nat Neurosci 1–13. https://doi.org/10.1038/s41593-024-01782-5

Elliott, M.A.T., Andrews, J.P., Molen, T. van der, Geng, J., Spaeth, A., **Voituik, K.**, Core, C., Gillespie, T., Sinervo, A., Parks, D.F., Robbins, A., Solís, D., Chang, E.F., Nowakowski, T.J., Teodorescu, M., Haussler, D., Sharf, T., 2024. Pathological microcircuits initiate epileptiform events in patient hippocampal slices. bioRxiv. https://doi.org/10.1101/2024.11.13.623525

Geng, J., **Voitiuk, K.**, Parks, D.F., Robbins, A., Spaeth, A., Sevetson, J.L., Hernandez, S., Schweiger, H.E., Andrews, J.P., Seiler, S.T., Elliott, M.A.T., Chang, E.F., Nowakowski, T.J., Currie, R., Mostajo-Radji, M.A., Haussler, D., Sharf, T., Salama, S.R., Teodorescu, M., 2024. Multiscale Cloud-based Pipeline for Neuronal Electrophysiology Analysis and Visualization. bioRxiv. https://doi.org/10.1101/2024.11.14.6

Elliott, M.A.T., Schweiger, H.E., Robbins, A., Vera-Choqqueccota, S., Ehrlich, D., Hernandez, S., **Voitiuk, K.**, Geng, J., Sevetson, J.L., Core, C., Rosen, Y.M., Teodorescu, M., Wagner, N.O., Haussler, D., Mostajo-Radji, M.A., 2023. Internet-Connected Cortical Organoids for Project-Based Stem Cell and Neuroscience Education. eNeuro 10. https://doi.org/10.1523/ENEURO.0308-23.2023

Park, Y., Hernandez, S., Hernandez, C.O., Schweiger, H.E., Li, H., **Voitiuk, K.**, Dechiraju, H., Hawthorne, N., Muzzy, E.M., Selberg, J.A., Sullivan, F.N., Urcuyo, R., Salama, S.R., Aslankoohi, E., Knight, H.J., Teodorescu, M., Mostajo-Radji, M.A., Rolandi, M., 2024. Modulation of neuronal activity in cortical organoids with bioelectronic delivery of ions and neurotransmitters. Cell Reports Methods 4. https://doi.org/10.1016/j.crmeth.2023.100686

Baudin, P. V., Sacksteder, R. E., Worthington, A. K., **Voitiuk, K.**, Ly, V. T., Hoffman, R. N., Elliott, M. A. T., Parks, D. F., Ward, R., Torres-Montoya, S., Amend, F., Duran, N. M., Vargas, P. A., Martinez, G., Ramirez, S. M., Alvarado-Arnez, L. E., Ehrlich, D., Rosen, Y. M., Breevoort, A., Schouten, T., Kurniawan, S., Haussler, D., Teodorescu, M., Mostajo-Radji, M. A., 2022. Cloud-Controlled Microscopy Enables Remote Project-Based Biology Education in Underserved Latinx Communities. Heliyon, vol. 8, no. 11. https://doi.org/10.1016/j.heliyon.2022.e11596

Parks, D.F., **Voitiuk, K.**, Geng, J., Elliott, M.A.T., Keefe, M.G., Jung, E.A., Robbins, A., Baudin, P.V., Ly, V.T., Hawthorne, N., Yong, D., Sanso, S.E., Rezaee, N., Sevetson, J., Seiler, S.T., Currie, R., Pollen, A. A., Hengen, K.B., Nowakowski, T.J., Salama, Mostajo-Radji, M. A., S.R., Teodorescu, M., Haussler, D., 2021. IoT Cloud Laboratory: Internet of Things Architecture for Cellular Biology. Internet of Things 2022, 20, 100618. https://doi.org/10.1016/j.iot.2022.100618

Voitiuk, K., Geng, J., Keefe, M.G., Parks, D.F., Sanso, S.E., Hawthorne, N., Freeman, D.B., Currie, R., Mostajo-Radji, M.A., Pollen, A.A., Nowakowski, T.J., Salama, S.R., Teodorescu, M., Haussler, D., 2021. Light-weight Electrophysiology Hardware and Software Platform for Cloud-Based Neural Recording Experiments. J. Neural Eng. https://doi.org/10.1088/1741-2552/ac310a

Ly, V.T., Baudin, P.V., Pansodtee, P., Jung, E.A., **Voitiuk, K.**, Rosen, Y., Willsey, H.R., Mantalas, G.L., Seiler, S.T., Selberg, J.A., Cordero, S.A., Ross, J.M., Pollen, A.A., Nowakowski, T.J., Haussler, D., Mostajo-Radji, M.A., Salama, S., Teodorescu, M., 2021. Picroscope: Low-Cost System for Simultaneous Longitudinal Biological Imaging. Communications Biology. https://doi.org/10.1038/s42003-021-02779-7

Gerber, L.C., Calasanz-Kaiser, A., Hyman, L., **Voitiuk, K.**, Patil, U., Riedel-Kruse, I.H., 2017. Liquid-handling Lego robots and experiments for STEM education and research. PLOS Biology 15, e2001413. https://doi.org/10.1371/journal.pbio.2001413

PATENT APPLICATIONS

K. Voitiuk, D. H. Haussler, and M. Teodorescu

"System and method for biological and hybrid neural networks communication," US20230104995A1, Apr. 06, 2023

K. Voitiuk, J. Geng, R. Currie, and M. Teodorescu, "Electrophysiology system and method for neural recording," US20220361802A1, Nov. 17, 2022

V. Ly et al., "System and method for simultaneous longitudinal biological imaging," US20220357566A1, Nov. 10, 2022

TECHNICAL SKILLS

Languages	Python, C, C++, Java, Bash, MATLAB
Approaches	Machine Learning, Networks Programming, Concurrent Programming
Web/Markup	LaTeX, Markdown, HTML, CSS
Tools/Platforms	UNIX, Git, Jupyter, Docker, Kubernetes, AWS
Electronics	FPGA (Verilog), Printed Circuit Board Design
Mechanical	3D Modeling (Autodesk Inventor, Fusion), 3D Printing/Rapid Prototyping, CNC

TEACHING EXPERIENCE

University of California, Santa Cruz

Alisal High School AP Biology, Mentor/Guest Lecturer, *Fall/Winter 2021-22; Winter/Spring 2022-23*
Scientific Principles of Life (BME 18), Teaching Assistant, *Fall 2021*
Robot Automation (ECE 8), Guest Lecture, *Fall 2021*
Genomics Institute Research Mentoring Internship (RMI) program, Mentor, *Fall 2020 - Spring 2021*
NeuroTechSC, Technical and Research Advisor, *Spring 2020 - Spring 2021*
Scientific Principles of Life (BME 18), Course Developer & Course Assistant, *Summer 2018 - Fall 2018*
Computer Systems and C Programming (CMPE 13/L), Tutor/Grader, *Winter 2017*
Computer Systems and Assembly Language (CMPE 12/L), Tutor/Grader, *Fall 2016*

Graham Middle School

Robotics Team Mentor, *September - November 2014*

POSTERS & PRESENTATIONS

2024 NHGRI Centers of Excellence in Genomics Science, Annual Grantee Meeting (Flashtalk, Poster)
2024 SfN Annual Conference (Poster)
2024 20th Annual Graduate Research Symposium (Poster)
2024 MaxWell Biosystems 3rd In-Vitro 2D & 3D Neuronal Networks Summit (Invited Speaker)
2023 NHGRI Centers of Excellence in Genomics Science, Annual Grantee Meeting (Flashtalk, Poster)
2023 MaxWell Biosystems 3rd In-Vitro 2D & 3D Neuronal Networks Summit (Invited Speaker)
2023 ARCS Supernova Scholar Celebration & Symposium (Poster and Video)
2023 NHGRI Research Training and Career Development Annual Meeting (Poster)
2022 CSHL Meeting: Development and 3D Modeling of the Human Brain (Poster)
2022 SfN Annual Conference (Poster)
2022 Asilomar Bioelectronics Symposium (Poster)
2022 PBSE Annual Conference (Poster)
2022 18th Annual Graduate Research Symposium (Talk)
2021 NHGRI Centers of Excellence in Genomics Science, Annual Grantee Meeting (Flashtalk)
2021 PBSE Annual Conference (Poster)
2021 NHGRI Research Training and Career Development Annual Meeting (Poster)

2020 PBSE Annual Conference (Poster)
2019 UCSC Graduate Society of Women Engineers (Guest Talk)
2019 Braingeneers Presentation for UCSC Dean's Council
2019 Genomics Institute Open House Braingeneers Presentation
2018 Braingeneers UC San Francisco Retreat Presentation
2019 Genomics Institute Science Meeting Research Presentation
2018 Symposium for Undergraduate Research at UCSC (Poster)
2018 Braingeneers Schmidt Grant Kick-off Retreat Presentation
2018 Koret Research Slam (Poster)
2018 Braingeneers Presentation for NSF Visitor Jim Kurose
2018 UCSC Baskin School of Engineering Graduation Open House (Poster)
2018, 2019 UCSC Alumni Weekend (Poster)
2017, 2018, 2019 Braingeneers Presentation for Genomics Institute
2017 Braingeneers Presentation Talk for UCSF Visitors at UCSC
2017 Braingeneers Presentation Talk at UCSF

HONORS & AWARDS

2023-24 University of California President's Dissertation-Year Fellowship
2022-23 ARCS Foundation Award, Agilent Technologies Scholar
2020-21, 2022-23 UCSC Genome Sciences NHGRI T-32 Trainee
2018-19 Koret Scholarship
2015, 2016, 2017, 2018 Dean's Honors List
2015 Impressive Participation in the 2015 US National Chemistry Olympiad Local Competition

LANGUAGES

English (fluent), Russian (native), Ukrainian (native), French (limited working)