

# Kateryna Voitiuk

[kvoitiuk.github.io](https://github.com/kvoitiuk)    [kvoitiuk@ucsc.edu](mailto:kvoitiuk@ucsc.edu)    (650) 336-0615

## EDUCATION

### University of California, Santa Cruz

2019 - Present

Ph.D. Candidate, Biomolecular Engineering and Bioinformatics

GPA: 4.0

*Designing an Electronics and Software Platform for Bio and in Silico Hybrid Neural Networks*

Advisors: David Haussler, Mircea Teodorescu

### University of California, Santa Cruz

2015 - 2019

B.A. Network & Digital Technology

GPA: 3.85

Graduated with Highest Honors in the major

University Honors: Cum Laude

## EXPERIENCE

### Haussler Lab, Teodorescu Lab, UC Santa Cruz

2019 - Present

*Graduate Researcher*

Designing models and algorithms for interaction with live neural networks

Developing hardware platform for electrical sensing and stimulation of neural activity

Engineering microfluidic chips and protocols for advanced connected organoid models

### Haussler Lab, Teodorescu Lab, UC Santa Cruz

2017 - 2019

*Undergraduate Researcher*

Created components of an automated imaging platform for monitoring human cortical organoids

Built cloud infrastructure for optogenetic experiment remote control

Designed custom hardware for optogenetic stimulation

Designed and manufactured mechanical and fluidic prototypes for organoid culture

### Riedel-Kruse Lab, Stanford University

June - July 2015

*Robotics Research Intern*

Designed and built 3 pipetting Lego robots for implementation in STEM curriculum

Programmed routines for 5 different automated experiments

## PUBLICATIONS

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., Hengen, K.B., Nowakowski, T.J., Salama, S.R., Teodorescu, M., Haussler, D., 2021. **Internet of Things Architecture for High Throughput Biology**. bioRxiv 2021.07.29.453595.

<https://doi.org/10.1101/2021.07.29.453595>

*(Submitted to iScience)*

**Voitiuk, K.**, Geng, J., Keefe, M.G., Parks, D.F., Sanso, S.E., Hawthorne, N., Freeman, D.B., Mostajir-Radji, M.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**. bioRxiv 2021.05.18.444685. <https://doi.org/10.1101/2021.05.18.444685>

*(Submitted to Journal of Neural Engineering)*

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. **Development of a Low-Cost System for Simultaneous Longitudinal Biological Imaging**. bioRxiv 2021.05.17.443454.

<https://doi.org/10.1101/2021.05.17.443454>

(Submitted to *Communications Biology*)

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>

## TECHNICAL SKILLS

<b>Languages</b>	Python, C, C++, Java, Bash, MATLAB
<b>Approaches</b>	Machine Learning, Networks Programming, Concurrent Programming
<b>Web/Markup</b>	L <sup>A</sup> T <sub>E</sub> X, Markdown, HTML, CSS
<b>Tools/Platforms</b>	UNIX, Git, Jupyter, Docker, Kubernetes, Amazon Web Services, Redis
<b>Electronics</b>	FPGA, SoC, Printed Circuit Board Design
<b>Mechanical</b>	3D Modeling (Autodesk Inventor, Fusion), 3D Printing/Rapid Prototyping, CNC

## TEACHING EXPERIENCE

### University of California, Santa Cruz

BME 18: Scientific Principles of Life, Teaching Assistant, *Fall 2021*

Mentor/Guest Teacher, Alisal High School AP Biology, *Fall 2020 - Present*

Mentor, Genomics Institute Research Mentoring Internship (RMI) program *Fall 2020 - Spring 2021*

Project Mentor, NeuroTechSC *Spring 2020 - Spring 2021*

BME 18: Scientific Principles of Life, Course Developer & Course Assistant, *Fall 2018*

CMPE 13/L: Computer Systems and C Programming, Tutor/Grader, *Winter 2017*

CMPE 12/L: Computer Systems and Assembly Language, Tutor/Grader, *Fall 2016*

### Graham Middle School

Robotics Team Mentor, *September - November 2014*

## POSTERS & PRESENTATIONS

2021 PBSE Annual Conference (Poster)

2021 NHGRI Annual Conference (Poster)

2020 PBSE Annual Conference (Poster)

2019 Graduate Society of Women Engineers (UCSC SWE) Guest Talk

2019 Braingeneers Presentation for UCSC Deans 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, 2019 Wet Lab Tour for Girls in Engineering

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 Liquid-handling Lego robots and experiments for STEM education and research (Poster)

2017 Braingeneers Presentation Talk for UCSF Visitors at UCSC  
2017 Braingeneers Presentation Talk at USCF

## **HONORS & AWARDS**

2020-21 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

## **ORGANIZATIONS**

NeuroTechSC - Technical and Research Advisor  
Applied Artificial Intelligence Institute (AAII) - Member

## **LANGUAGES**

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