PIPER R. WELCH

Piper.Welch@uvm.edu ⋄ <u>GitHub</u> ⋄ <u>Google Scholar</u>

EDUCATION

University of Vermont — *Burlington, VT*   *August 2022 - Expected June 2027*
Ph.D. in Computer Science

Advisor: Dr. Josh Bongard

Research: AI-Designed Organisms, Biological Robots, Swarm Behavior

GPA: 4.0/4.0

Relevant Coursework: Evolutionary Computation, Modeling Complex Systems, Data Science, Machine Learning, Evolutionary Robotics

Carleton College — *Northfield, MN*   *September 2018 - June 2022*
B.A in Computer Science, Minor in Biochemistry

SKILLS

Programming Languages	Python, Java, JS/HTML/CSS, C, C++, R, Scheme
Technical Skills	Git, Empirical, LaTeX, Excel, Word
Natural Languages	**Native**: English. **Intermediate**: Russian, Spanish, Hebrew
Lab Skills	Protein Assays, Titration, Mass Spectrometry, Gel Electrophoresis

AWARDS AND HONORS

The David Pollatsek '96 Prize in Computer Science, Carleton College, 2022

Sigma Xi, Associate Membership, 2022

CRA Outstanding Undergraduate Researcher, Nominee, Carleton College, 2021

Grace Hopper Scholarship, Carleton College, 2020

TEACHING & ADVISING EXPERIENCE

Student Departmental Advisor — *Northfield, MN*   *September 2021 - June 2022*
Carleton College, Dept. of CS

· Advising peers about college-wide requirements, departmental major requirements, and academic support services

Prefect — *Northfield, MN*   *September 2021 - June 2022*
Carleton College, Dept. of CS

· Hosting and facilitating weekly interactive, discussion-based learning sessions for course-work in **Data Structures**, **Math of Computer Science** and **Computability and Complexity**

Lovelace — *Northfield, MN*   *September 2020 - June 2022*
Board Member

· Leading a mentorship program that endorses interest in CS among female/non-binary under-classmen
· Promoting female/non-binary engagement in the CS Dept. with weekly open office hours

Teaching Assistant — *Northfield, MN*   *July 2021 - August 2021*
Carleton Summer Liberal Arts Institute Carleton College, Dept. of CS

· Leading small group discussions; creating and implementing lesson plans

Course Staff & Laboratory Assistant— *Northfield, MN*   *September 2020 - June 2021*
Carleton College, Dept. of CS

· Fostering a positive environment for CS students with weekly open lab hours
· Providing constructive feedback on course-work in Mathematics of Computer Science and Introduction to Computer Science

INDUSTRY EXPERIENCE

CannaVision Extern — *Sacramento, CA*   *November 2020 - December 2020*
California Dept. of Water Rights

· Training and improving the accuracy of CannaVision, a computer vision tool developed by the California govt. to detect cannabis grows via aerial imagery
· Developed a training data set of over 1000 images

PUBLICATIONS

Johnson, Kiara, **Welch, Piper**, Dolson, Emily, and Vostinar, Anya. "Endosymbiosis or Bust: Influence of Ectosymbiosis on Evolution of Obligate Endosymbiosis." ALIFE, 2022.

Welch, Piper, and Vostinar, Anya. "Defect or Die: How Does Low Resource Availability Impact the Preservation of Cooperation in a Quorum-Sensing Regulated Public Good Economy?". ALIFE, ABMHuB Workshop, 2021.

Chen, Theresa, Ryan, James, and **Welch, Piper**. "Understanding MESSY-71: A Case Study in Computational Media Archaeology". Digital Humanities Quarterly, Critical Code Studies, in print.

TALKS

Symbulation Tutorial, ALIFE Conference, Virtual, July 2022

Endosymbiosis or Bust: Influence of Ectosymbiosis on Evolution of Obligate Endosymbiosis, ALIFE Conference, Virtual, July 2022

On the Evolution of Endosymbiosis, Sigma Xi Induction, Carleton College, May 2022

PANELS

How to Succeed in Summer Research, Panelist, Carleton College, Northfield MN, June 2022