

Nicholas B. Pratt

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Education

University at Buffalo, Buffalo, NY Expected May 2026
Bioinformatics & Computational Biology B.S.
School of Engineering and Applied Sciences

Research Experience

Undergraduate Research Assistant 12/25 – Present & 01/24 – 12/24

Principle Investigator (s): Dr. Jaroslaw Zola, Dr. Zhong Wang,
S-CoRe (Scalable Computing Research) Group
Joint Genome Institute, Berkeley National Lab; Department of Computer Science, University at Buffalo
Responsibilities:

- Design and execute AULC experiments to measure quality of genomic data for training of genomic foundation models using information theory metrics.
- Retrain publicly available machine learning models to create a tool to detect Oxidative DNA Damage during DNA sequencing pipeline.
- Perform using Oxford Nanopore sequencing pipelines. Protocol includes DNA extraction, library preparation, nanopore sequencing, and sequence basecalling using bioinformatic tools.

Laboratory Technician 08/25 – 01/26

Principle Investigator: Dr. Charlotte Lindqvist
Department of Biological Sciences, University at Buffalo

- Paid research position working in close collaboration with the Albert Lab on *S. purpurea* & *U. gibba* projects.
- Work on nanopore sequencing, genome assembly, functional annotation, construction of evolutionary history, and characterization of genome architecture for various plant and bear species.

Summer/Undergraduate Research Assistant 06/25 – 12/25

Principal Investigator(s): Dr. Michael Gore, Dr. Kelly Robbins
Plant Breeding and Genetics Section, Cornell University, Boyce Thompson Institute
Summer Program: CROPPS Programmable Plant Systems REU

- Construct and preprocess datasets from 2023 and 2024 field trials of a prototype programmable plant system in maize with mutant *slac1* genes
- Develop and implement a longitudinal modeling pipeline combining Gaussian curve fitting, linear mixed models, and Random Forest analysis in R to identify genomic and environmental drivers of variation in potential tolerance to drought

Undergraduate Research Assistant

09/24 – 01/2026

Principle Investigator: Dr. Victor Albert

Department of Biological Sciences, University at Buffalo

Responsibilities:

- Assembled and scaffolded the first draft genome of *Sarracenia purpurea* using long-read assembly pipelines and Hi-C chromosomal interaction data, followed by quality assessment (BUSCO, QUAST) and iterative polishing.
- Performed functional annotation and comparative genomic analyses, identifying digestive enzyme gene families and evaluating patterns of convergent evolution

Summer Research Assistant

06/24 – 08/24

Principal Investigator: Dr. Trevor Krabbenhoft

Department of Biological Sciences, University at Buffalo

Summer Program: SUNY Chancellor Biological Sciences REU

Responsibilities:

- Retrain publicly available machine learning models to create a tool to detect Oxidative DNA Damage during DNA sequencing pipeline.
- Perform using Oxford Nanopore sequencing pipelines. Protocol includes DNA extraction, library preparation, nanopore sequencing, and sequence basecalling using bioinformatic tools.

Publications

Albert, V. A., Kirshner, J., Page, C., **Pratt, N.**, Merkel, J., Richter, M., Freund, M., Fukushima, K., & Lindqvist, C. Genome evolution and convergent innovation in the carnivorous plant *Sarracenia purpurea*. *bioRxiv*. 2025. doi: 10.64898/2025.12.26.696377 .

Honors

UB Excellence in Research, Scholarship and Creativity Award 2025

- University-wide award recognizing one undergraduate research project per academic division for exceptional achievement in content, scope, and presentation.

Barry M. Goldwater Scholarship 2025

- Prestigious national scholarship recognizing outstanding undergraduate researchers in STEM fields.

Benjamin A. Gilman International Scholarship 2024

- U.S. Department of State scholarship that provides funding for undergraduate students with financial need to study or intern abroad, supporting global engagement and cross-cultural understanding. Studied abroad in Czechia in 2024.

McNair Scholar Program, University at Buffalo 2024 – Present

- Ronald E. McNair Post-Baccalaureate Achievement Program is dedicated to excellence in scholarship. Serves low-income, first-generation students and traditionally underrepresented undergraduate students along their path to earning a PhD.

University at Buffalo (UB) Dean's List 2022 – Present

- Full-time undergraduate students who demonstrate academic excellence by earning a grade point average (GPA) of at least 3.6.

Daniel Acker Scholars Program & Scholarship, University at Buffalo 2022 – Present

- The Daniel Acker Scholars Program is a unique, individualized learning community of academically talented and diverse students who have strong commitment to justice, leadership and community service.

NYS Triple C Award 2022

- The Triple C Award issued by the *New York State Attorney General's Office* for having an inspiring character, courage and commitment (to community service or leadership) in the face of personal adversity and life challenges. The award recognizes student's spirit and determination.

Presentations

Pratt, N. (2025, October). *Longitudinal Modeling of Maize Gas Exchange for Optimizing Water Use Efficiency*. Oral presentation at the Gulf Coast Undergraduate Research Symposium, Houston, TX.

Pratt, N. (2025, August). *Genomic and Environmental Effects on Maize Gas Exchange*. Oral presentation at the Boyce Thompson Institute George and Helen Kohut Research Symposium, Ithaca, NY.

Pratt, N., Page, C. (2025, April). *Sarracenia purpurea: Genome Assembly and Analysis of the Carnivorous North American Purple Pitcher Plant*. Poster presentation at the Celebration of student excellence Research Showcase, Buffalo, NY.

Pratt, N. (2025, April). *Enhancing Nanopore Sequencing: Leveraging Machine Learning to Detect Oxidative DNA Lesions*. Poster presentation at the 2025 SUNY AI Symposium at UB, Buffalo, NY.

Pratt, N. (2025, March). *Sarracenia purpurea: Hierarchical Convergence in Morphology and Genome Evolution of Carnivorous Pitcher Plants*. Poster presentation at the 26th Annual McNair Scholars Undergraduate Research Conference, College Park, MD.

Pratt, N. (2024, November). *Enhancing Nanopore Sequencing: Leveraging Machine Learning to Detect Oxidative DNA Damage*. Poster presentation at University at Buffalo First Generation Research Symposium, Buffalo, NY.

Pratt, N. (2024, July). *Enhancing Nanopore Sequencing: Leveraging Machine Learning to Detect Oxidative DNA Lesions*. Poster presentation at the SUNY Chancellor's Biological Sciences Summer Undergraduate Research Excellence Program Symposium, Buffalo, NY.

Work Experience

Resident Assistant 08/25 – Present

University at Buffalo Campus Living, Buffalo, NY

- Support 40 residents by fostering a safe and academically focused living environment.
- Plan and lead community programming, mediate conflicts, and connect residents with university resources.

Project Manager/Estimator/Laborer

06/23 – Present

The MJA Company, Buffalo, NY

- Did and estimate price construction projects, developed standardized proposal systems, coordinate crews and schedules, and ensure execution matches project plans and budgets.
- Work independently installing epoxy flooring and chemical floor penetrants, polishing and repair concrete flooring.

Grocery Clerk/Maintenance Personnel

05/19 – 06/23

Various Employers, Buffalo, NY

- Worked in multiple seasonal and part-time roles including landscaping, agricultural labor, retail assistance, housekeeping, and other service positions.
- Developed transferable skills in time management, communication, and problem solving.

Teaching Experience

Academic Tutor (Stat 301/302, Bioinfo 419)

01/26 – Present

University at Buffalo, Buffalo, NY

Media Appearances

April 2025 University at Buffalo News Center. “Two Buffalo students awarded Goldwater scholarships.” [Link](#)

Certifications

- OSHA 10 Certification
- Laboratory Safety Certification

Professional Activities

UB Chemistry Club

Land Restoration Project

Founder/Vice President of UB Graphic Design Club

WNY Youth Climate Council

Blood Drive Student Organizer