

# John Rathgeber

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## EDUCATION

**Brown University, Sc.B. Mathematics-Computer Science, Music** Providence, RI | **Expected Graduation May 2027**

- **GPA: 3.8**
- **Computer Science Courses:** Computer Vision, Fundamentals of Computer Systems, Accelerated Introduction to Computer Science, Discrete Structures and Probability
- **Mathematics Courses:** Abstract Algebra, Differential Geometry, Multivariable Calculus with Theory, Linear Algebra with Theory, Logic

## INDUSTRY EXPERIENCE

**Full Stack at Brown, Developer** Providence, RI | September 2024 – Present

- Collaborated in a small team of developers and designers to build and maintain websites for various organizations at Brown University using HTML, CSS, JavaScript, and React.

### Wisconsin Department of Transportation

*Computer Vision Intern* Madison, WI | July 2024 – August 2024

- Transitioned into a Computer Vision role to tackle advanced challenges, addressing a critical need for accurate image processing and object detection solutions within the Bureau of State Highway Programs.
- Developed an algorithm to accurately estimate 3D positions of street signs across Wisconsin from a dataset of over 3 million images taken from a moving vehicle, pioneering a unique solution in the department and enabling the state to map each and every traffic sign in Wisconsin.
- Used linear algebra techniques to optimize the geotagging of traffic signs, automating a previously manual process and significantly improving efficiency.

### Wisconsin Department of Transportation

*Crossing Repair Intern* Madison, WI | May 2024 – August 2024

- Collected and analyzed data on railroad crossings across Wisconsin, developing a quantitative grading system to assess safety and using Excel for data tabulation and analysis, which facilitated data-driven decision-making.
- Completed initial Crossing Repair Program tasks ahead of schedule due to high efficiency.

### SoilNet, Data Science Intern

Belleville, WI | May 2024 – August 2024

- Maintained and developed a company database through using SQL, stored procedures, continuous API queries and ETL processes, ensuring up-to-date and accurate data management.
- Collaborated with a team of data scientists to analyze soil and plant analysis data, culminating in a final presentation to stakeholders highlighting key insights and recommendations for agricultural planning.
- Contributed to a multi-disciplinary project that formed the backbone of a \$1M SBIR federal proposal grant to the USDA.

### Field & Stream Restorations, Landscaper

Verona, WI | July 2023 – August 2023

- Worked with a team to transform several acres into a prairie at Epic Healthcare System's headquarters by using heavy landscaping equipment.

### Piano Teacher

Cottage Grove, WI | June 2023 – August 2023

- Taught students foundational piano skills such as rhythm, sight-reading, hand coordination, and accompaniment.
- Guided students to read and play sheet music, culminating in a final performance with family members.

### Math Tutor

Cottage Grove, WI | April 2020 – August 2020

- Worked with students in a virtual environment to provide educational support during the COVID-19 pandemic.
- Facilitated interactive learning sessions, encouraging student participation and engagement in mathematics.

## PROJECTS

**Tumor Detection, Python, Keras, Tensorflow**

Providence, RI | September 2024 – December 2024

- Developed and trained a Convolutional Neural Network (CNN) achieving 90% accuracy in brain tumor classification.
- Utilized publicly available Kaggle datasets to preprocess, train, and validate the CNN model.

## SKILLS

**Languages:** C/C++, Python, Java, JavaScript, TypeScript, React, SQL, HTML, CSS

**Tools:** VSCode, GitHub, Docker, PyTorch, OpenCV, Flask, Keras, Tensorflow, DBeaver, Microsoft Excel

**Interests:** Piano, Competitive Programming, Chess, Tennis, Hockey