



BROWN

Department of Mathematics
<https://www.math.brown.edu>

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Subject: Scientist to Data Scientist Position

Dear Patreon Hiring Team,

I am writing to apply for the Scientist to Data Scientist position at Patreon. I am interested in this position as I am excited to apply my mathematical, programming, and analytical skills to conducting quantitative research that addresses challenging real world problems. Further, I would love the opportunity to work at Patreon as I really believe in Patreon's mission to support creators and connect them with their community. I have supported many of my favorite creators via Patreon for a number of years.

Currently, I am a postdoctoral researcher in the Mathematics Department at Brown University, a position I have held since August 2022. My research in mathematics brings together computational, combinatorial, and algebraic tools to study the geometry of zero loci of systems of polynomials. I received my Ph.D. in Mathematics from the University of Wisconsin - Madison in 2020. From 2020-2022 I was an NSF Postdoctoral Fellow in the Mathematics Department at the University of California, Berkeley.

While my area of research – algebraic geometry – is not traditionally known as a field with significant data analysis, much of my work sought to bring together ideas from different fields (numerical linear algebra, large distributed computing, etc.) to generate new large data sets of interesting examples. My analysis of this data led to a number of new insights and conjectures on the connections between the geometry and algebra of systems of polynomial equations.

I have a diverse skill set including exceptional mathematical maturity and knowledge, a strong proficiency in programming, creative cross-field problem-solving, managing, and contributing to collaborative research projects, and technical communication. I have an deep mastery and knowledge in mathematics and mathematical statistics, arising coursework for my Ph.D., teaching, and research. Moreover, through my research, I have developed a proficiency with Python, a basic understanding of Matlab and R, and expertise in the computer algebra language Macaulay2. I have developed four open-source software packages for Macaulay2, which have been peer-reviewed. Further, teaching and giving hundreds of invited research presentations have given me strong communication skills including conveying technical ideas and insights to people in other fields.

I believe that this skill set will allow me to transition to a successful career in data science, and I am

dedicated to working extremely hard to grown and make this transition. The opportunity to quickly transition to using my mathematical, quantitative, and programming skills to solving meaning real world problems makes this position presents is extremely exciting to me. This excitement reinforced by the fact I would be also having the opportunity to work for a company whose mission I truly believe in.

Thank you for your consideration, and I hope to have the opportunity to discuss ways my experiences make me suited for this position.

Sincerely,

Juliette Bruce