James Harbour

Resume

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I am a mathematics and computer science double major at the University of Virginia with a comprehensive undergraduate and graduate-level mathematics background. My primary interests are in operator algerbas and noncommutative geometry.

Following my PhD, I plan to pivot towards the financial sector with a focus on quantitative finance and algorithmic trading.

Mathematics Experience

- At the University of South Florida during high school, I completed the majority of courses in a mathematics major as well as a variety of graduate-level courses.
- Took the same mathematics courseload as UVA's 1st year mathematics PhD students (and more) during my freshman year. Passed the analysis (real & complex) PhD qualifying exams.
- Last summer, I took an intensive one-on-one reading course in operator algebras with one of my professors. Living expenses were covered by a grant (see below).
- I am a member of the UVA operator theory seminar for graduate students, at which I have given two lectures on type II_1 subfactor theory for von Neumann algebras.
- **Graduate level courses taken**: Functional Analysis, Measure Theory, Complex Analysis, Differential Topology, Algebraic Topology, Algebraic Geometry, Representation Theory, Algebra II, Algebra I, Applied Partial Differential Equations.

Financial Experience

- **Member of UVA's Alternative Investment Fund** An investment club managing a portfolio of $\$50,000$ AUM. Rigorous selection process with multiple interviews and a 3% acceptance rate. This club includes an extensive training program for new members.

Programming Experience

Proficient In Java, C++, Python, Javascript (see my github above)
Using scientific-computing software (SageMath, Mathematica) level: medium
Using document markup software (LaTeX, Office Suite) level: advanced
Using Linux level: medium. (I currently run Arch-Linux on my main laptop)

Honors and Awards

- Various Grants/Funding/Travel (see my website for more info)
  - $2000 Supporting summer research in operator algebras alongside Dr. Benjamin Hayes.
  - $500 For travel to the Notre Dame workshop in Elliptic Curves and Modular Forms
  - $1000 Supporting travel fees to attend the East Coast Operator Algebras Seminar.
  - $1500 Supporting travel fees to attend the Joint Mathematics Meetings
- Mathematics PhD Qualifying Exams - Passed Real & Complex Analysis Exams (as a freshman)