James Bryan Graves

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- Quantum Information Science, Quantum Computer Science
- Algorithms, Complexity, Information Theory, Category Theory (for Quantum Theory)
- Data, Data Science
- Software/System Architecture, Functional (λ) programming, OOP, APIs, Operating Systems
- Research Assistant for National Science Foundation (NSF) funded quantum software stack development for trapped ion hardware
- 2+ years lecturing/teaching Bachelor's students

EDUCATION

Indiana University — Bloomington, IN, USA
Quantum Information Science MS, GPA 4.0 — *Aug. 2024 – Present*
- **Courses:** Quantum Computation & Quantum Information, Advanced Functional Programming, Quantum Mechanics, Quantum Programming, Models in Cognitive Science, Research

Massachusetts Institute of Technology, MIT — Cambridge, MA, USA, remote
Quantum Computing Fundamentals, xPRO — *Apr. 2024 – June 2024*

University of Applied Sciences Amsterdam, The Hague, Saxion, Fontys — The Netherlands
Introduction Quantum Computing, Master's curriculum development & test run — *Apr. 2024 – June 2024*

Purdue University — West Lafayette, IN, USA
Bachelor of Science in Computer Science, BSCS, Music Theory Minor — *Aug. 1996 – May 2000*

RESEARCH

Programming language development for quantum simulation (Hamiltonian evolution, second quantization, adiabatic quantum simulation) in quantum chemistry, nuclear physics, ising models applied to NP hard problems, & more.

Advisors: Dr. Amr Sabry, Indiana University, Bloomington, IN, USA; Dr. Gerardo Ortiz, Indiana University, Bloomington, IN, USA; Dr. Phil Richerme, Indiana University, Bloomington, IN, USA; Dr. Liyi Li, Iowa State University, Ames, IA, USA.

EXPERIENCE

Researcher — Jan. 2025 – Present
Indiana University, iu.edu — *Bloomington, IN, USA*
- Quantum programming language design and implementation
- Quantum compilers
- Target systems: Trapped ions, NISQ quantum computers

Researcher, Senior SDE — Oct. 2015 – Oct. 2020
Hubzero, Purdue University, UCSD, San Diego Supercomputer Center (SDSC), hubzero.org — *San Diego, CA, remote*
- JVM based microservices in Clojure (λ) & Java
- Data, data science, data visualizations
- Published 2 academic papers, multi-conference speaker

SDE — May 2000 – Oct. 2000
IBM — *Burlington, VT*
- Test evaluation platform for semiconductor waffer testing

More experience available on request, or @ jamesbryangraves.com . . .

TECHNICAL SKILLS

Languages: Python, Haskell, C/C++, Javascript, Java, Clojure, .NET/C#, . . .
Frameworks: Qiskit, Pennylane, Nvidia CUDA and CUDA-Q, Node.js, . . .