

James Bryan Graves

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- Quantum Information Science, Quantum Computer Science
- Algorithms, Complexity, Information Theory, Category 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

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| Indiana University <i>Theoretical Computer Science PhD</i> <i>Quantum Information Science MS, GPA 4.0</i> <ul style="list-style-type: none">• Courses: Quantum Computation & Quantum Information, Advanced Functional Programming, Quantum Mechanics, Quantum Programming, Models in Cognitive Science, Research | Bloomington, IN, USA <i>Aug. 2026 – Present</i> <i>Aug. 2024 – May 2025</i> |
| Massachusetts Institute of Technology, MIT <i>Quantum Computing Fundamentals</i> | Cambridge, MA, USA, remote <i>Apr. 2024 – June 2024</i> |
| University of Applied Sciences Amsterdam, The Hague, Saxion, Fontys <i>Introduction Quantum Computing, Master's curriculum development & test run</i> | The Netherlands <i>Apr. 2024 – June 2024</i> |
| Purdue University <i>Bachelor of Science in Computer Science, BSCS, Music Theory Minor</i> | West Lafayette, IN, USA <i>Aug. 1996 – May 2000</i> |

RESEARCH & PUBLICATIONS

- Damir Cavar, James Bryan Graves, Shane Sparks, Koushik Reddy Parukola, **Hybrid Classical Quantum Embeddings for NLP and AI using Hamiltonians**. IEEE International Conference on Quantum Computing and Engineering (QCE25)
- Liyi Li, David Young, James Bryan Graves, Chandeeppa Dissanayake, Amr Sabry, **A Haskell Adiabatic DSL: Solving Classical Optimization Problems on Quantum Hardware**. The ACM SIGPLAN International Conference on Functional Programming (ICFP 2025)
- Damir Cavar, Koushik Reddy Parukola, James Bryan Graves, Shane Sparks, **Old Wine in New Bottles: Using Classical Word Embeddings in Quantum NLP Systems**. Quantum AI and NLP 2025
- James Bryan Graves, Goren Gordon, **Quantum Curiosity: Quantum Curious Feature Selection**. Quantum AI and NLP 2025

EXPERIENCE

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| Researcher <i>Indiana University, iu.edu</i> <ul style="list-style-type: none">• Quantum computer science & information science; quantum compilers, programming languages & implementation | Jan. 2025 – Present <i>Bloomington, IN, USA</i> |
| CTO in residence, tech leadership <i>Antler, antler.co</i> <ul style="list-style-type: none">• Entrepreneurship, startups, & venture capital• Quantum computing• Gen AI, prompt engineering, & AI/ML• Compute, GPU & cloud | May 2024 – Aug. 2024 <i>Amsterdam, The Netherlands</i> |
| Technology Lead (interim CTO), Senior SDE <i>Dream Machine Innovations Inc., More to*, moreto.io</i> <ul style="list-style-type: none">• Prompt engineering, integration and content creation with Gen AI (OpenAI GPT-4)• REST API using Python, PostgreSQL• Apple iOS app in Swift/SwiftUI | Jul. 2023 – Apr. 2024 <i>New York, New York, USA, remote</i> |

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| Co-founder, CTO, Technology Lead <i>THE EMBASSIES of Good Living AG, embassies.com</i> | Oct. 2020 – Jun. 2023 <i>Zürich, Switzerland, remote</i> |
| <ul style="list-style-type: none"> No longer working full-time, but still shareholder and involved in the company | |
| Researcher, Senior SDE <i>Hubzero, Purdue University, UCSD, San Diego Supercomputer Center (SDSC), hubzero.org</i> | Oct. 2015 – Oct. 2020 <i>San Diego, CA, remote</i> |
| <ul style="list-style-type: none"> JVM microservices in Clojure (λ) & Java; data science & visualizations; published 2 academic papers, multi-conference speaker | |
| Lecturer & Workshop Leader <i>Royal Academy of Art (KABK), kabk.nl</i> | Dec. 2019 – Jun. 2021 <i>The Hague, The Netherlands</i> |
| <ul style="list-style-type: none"> Teaching position & workshop leader for Bachelor's level design based coding curriculum 2 classes per semester, >30 students each Conducted additional lectures & workshops for Master's students | |
| Founder <i>Hackers & Founders, hackersandfounders.nl</i> | Feb. 2011 – Nov. 2019 <i>Amsterdam, The Netherlands</i> |
| <ul style="list-style-type: none"> Meetup group & community >10000 members across The Netherlands co-working, leased property, 850m² real estate, \approx 100 desks | |
| Co-founder <i>Hackers & Designers, hackersanddesigners.nl</i> | Jul. 2013 – Aug. 2018 <i>Amsterdam, The Netherlands</i> |
| <ul style="list-style-type: none"> Non-profit (Stichting) Mission: To bringing art, design, & technology closer Authored grant awarded applications, funded year over year | |
| Technology Lead, Senior SDE <i>Qardio, Inc., qardio.com</i> | May 2013 – Oct. 2015 <i>San Francisco, CA & Amsterdam, The Netherlands</i> |
| <ul style="list-style-type: none"> Apple iOS app in Swift/Objective-C for Bluetooth connected consumer health devices REST API, PHP AWS, Docker, PostgreSQL, Embedded C Wrote approved United States FDA (Food & Drug Administration) application & specifications | |
| Co-founder, CTO, Senior SDE <i>Ideedock</i> | May 2011 – May. 2013 <i>Amsterdam, The Netherlands</i> |
| <ul style="list-style-type: none"> Developed REST API in Javascript/Node.js Backbone.js based MVC frontend Technologies including AWS, MongoDB | |
| Mobile Lead, Senior SDE <i>Whatsr</i> | Sep. 2009 – May 2011 <i>Amsterdam, The Netherlands</i> |
| <ul style="list-style-type: none"> Location (GPS) based social media platform, Augmented Reality (AR) Apple iOS/Objective-C, C, C++, REST, APIs, Ruby on Rails | |
| Senior SDE <i>Interactions Incorporated</i> | Jun. 2008 – Jul. 2009 <i>Carmel, IN USA</i> |
| <ul style="list-style-type: none"> Teleconferencing platform Java, Java EE, HTTP, APIs, HTML, CSS | |
| Senior SDE <i>Computer Sciences Corporation (Arabia)</i> | Feb. 2007 – May 2007 <i>Riyadh, Saudi Arabia</i> |
| <ul style="list-style-type: none"> Biometrics platform Java, Java EE, IBM Websphere, Oracle | |
| Senior Software Consultant <i>Software Architects, Sogeti</i> | Jun. 2003 – Feb. 2007 <i>Riyadh, Saudi Arabia</i> |
| <ul style="list-style-type: none"> Java, Java EE, IBM Websphere, Oracle, DB2 | |
| SDE <i>Cantilever Technologies</i> | Oct. 2000 – Feb. 2003 <i>Purdue University, West Lafayette, IN USA</i> |
| <ul style="list-style-type: none"> Java, XML, XLST, PostgreSQL | |
| SDE <i>IBM</i> | May 2000 – Oct. 2000 <i>Burlington, VT</i> |
| <ul style="list-style-type: none"> Test evaluation platform for semiconductor wafer testing | |

TECHNICAL SKILLS

Languages: Python, Haskell, C/C++, Javascript, Java, Clojure, .NET/C#, ...

Frameworks: Qiskit, PennyLane, Nvidia CUDA and CUDA-Q, Node.js, ...

SPEAKER / LECTURE / WORKSHOP / EVENTS

Quantum AI and NLP Conference, Speaker
Indiana University, Bloomington, IN, USA, Aug. 2025

Coliving Conference, Speaker
Amsterdam, The Netherlands, Sep. 2023

Lecture/Workshop, Royal Academy of Art (KABK)
Den Haag, The Netherlands, Jan. 2023

Speaker, EGI Conference
Amsterdam, The Netherlands, Nov. 2020

Speaker, IMPAKT Festival
Utrecht, The Netherlands, Oct. 2020

Speaker, Gateways Conference, Science Gateways Community Institute (SGCI)
San Diego, CA, USA, Oct. 2020

Lecture/Workshop, Aalto University
Helsinki, Finland, Dec. 2019

Exhibitor, Mutation Festival
Nerdlab, Ghent, Belgium, Oct. 2019

Participant, Sandberg Instituut Masterclass
Amsterdam, The Netherlands, Mar. 2019

Workshop/Exhibitor, Science Gateways Community Institute (SGCI)
San Diego, CA, USA, Sep. 2018

Organizer, Hackers & Designers Summer Academy 2018
Amsterdam, The Netherlands, Jul. 2018

Lecture/Workshop, School of City Design, CAFA
Beijing, China, Oct. 2017

Lecture/Workshop, Fine Arts Academy of Hunan Normal University
Chang Sha, China, Oct. 2017

Exhibitor, Oddstream
Arnhem, The Netherlands, Oct. 2017

Organizer, Hackers & Designers Summer Academy 2017
Amsterdam, The Netherlands, Jul. 2017

Speaker, FIBER Festival, Speaker
Amsterdam, The Netherlands, May 2017

Speaker, Hackers & Founders Meetup
Amsterdam, The Netherlands, Apr. 2017

Speaker, REMEDI Pump collaborative conference
Chicago, IL, USA, Apr. 2017

Residency, Oddstream Oddstay
Arnhem, The Netherlands, Apr. 2017

Exhibitor, STRP Festival
Eindhoven, The Netherlands, Mar. 2017

Workshop, Baby you can drive my car (self-driving car)
Amsterdam, The Netherlands, Feb. 2017

Exhibitor, KASK, ... een kleptomaan neemt de dingen letterlijk ...,
Gent, Belgium, Feb. 2017

Workshop, Big Brother Awards
Amsterdam, The Netherlands, Nov. 2016

Exhibitor, Journey with Hovel Bot
Brussels, Belgium, Oct. 2016

Speaker, ACM Purdue University
West Lafayette, IN, USA, Oct. 2016

Workshop, Endless Cities Festival
Toronto, Canada, Sep. 2016

Speaker, Otis College
Los Angeles, CA, USA, Sep. 2016

Residency, Mad Scientist Festival
Bern, Switzerland, Sep. 2016

Organizer, Hackers & Designers Summer Academy 2016
Amsterdam, The Netherlands, Jul. 2016

Exhibitor, Northside Festival
Brooklyn, NY, USA, June 2016

Speaker/Exhibitor, Sektor 3.0 Conference
Warsaw, Poland, May 2016

Workshop, LibreGraphics Meetup
London, United Kingdom, Apr. 2016

Workshop, Sandberg Instituut
Amsterdam, The Netherlands, Feb. 2016

Exhibitor, ZineFest
Berlin, Germany, Nov. 2015

Workshop, Mozilla Mozfest
London, United Kingdom, Oct. 2015

Speaker, EBF Conference
Groningen, The Netherlands, September 2015

Organizer, Hackers & Designers Summer Academy 2015
Amsterdam, The Netherlands, Jul. 2015

Residency, Invisible Cities Festival
Gorizia, Italy, June 2015

Exhibitor, Appril Festival
Amsterdam, The Netherlands, Mar. 2015

Workshop, University of Amsterdam
Amsterdam, The Netherlands, Feb. 2015

Workshop, Mozilla Mozfest
London, United Kingdom, Oct. 2014

Exhibitor, Collision Conference
Las Vegas, NV, USA, May 2014

Exhibitor/Speaker, Tech Crunch Disrupt
Berlin, Germany, Oct. 2013

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