

Leader, learner, **teacher**. **Developer** of software, knowledge, and people.
AI scientist specializing in **multi-agent deep reinforcement learning**.
 Cloud-native distributed systems engineer. **Python** and **C++** programmer.

Work Experience

Assistant Professor of Computer Science Kennesaw State University Jan 2025-present
 Mentor researchers, develop and lead research program, teach classes.

Senior AI Architect Semtech/Sierra Wireless Dec 2022 to Dec 2024
 Led AI strategy and execution. Built system that saved over \$10K in direct costs and 20 person-hours of labor per month. Was offered Chief AI Scientist role before I decided to leave to rejoin academia.

Senior AI and Software Engineering Lead IBM, The Weather Company Aug 2019 to Dec 2022

- Won IBM **Eminence and Excellence Award** with significant cash bonus.
- Led a team writing globe-scale core microservices that are involved in every Weather Company API call, on IBM Cloud and AWS (Scala, **Go**, **Kubernetes**, etc.).
- Mentored junior, mid and senior engineers into productive **Python** developers.
- Recruited to small senior team writing **big data** ETL pipelines in **Apache Spark** to support California Consumer Privacy Act compliance. Recognized company-wide for delivering solution in three months.
- Sped up a data cleanup and migration process from over 15 hours to under 1 hour, enabling switchover of two core back-end services from AWS to IBM Cloud with minimal down time.
- Wrote anti-corruption layer for microservices failing due to bad inputs that exploded Cassandra 10x. With cleanup and migration process, my design fixed the problem and prevented it from ever recurring.

Independent Consultant MIT Press Feb 2016 to present
 Review **machine learning** textbooks, recommend publication, provide editorial suggestions.

Lecturer of Computing Georgia Institute of Technology May 2013 to Aug 2019
 Taught over 1000 students a year. Led a staff of 40 teaching assistants, including several top award-winning students; most now work at top tech companies. **Co-directed study abroad program in Berlin, Germany**. Developed and taught courses in **Machine Learning**, Databases, Computational Tools for Data Analytics, Object-Oriented Design and Software Engineering, Object-Oriented Programming, and Python workshops for MS in Analytics, MS in Quantitative and Computational Finance.

Software Engineer Travel Syndication Technology Dec 2015 to Aug 2016
 Back-end Scala for travel services built from millions of lines of Scala, Java, HTML, and JavaScript.

Research Scientist Georgia Tech Research Institute Nov 2001 to Apr 2013

- **Principal investigator**: intelligent non-player characters for interactive narratives and games. Wrote AFABL, a **Scala**-embedded domain specific language for writing intelligent agents. **First runner-up, GTRI independent research of the year**.
- **Chief architect** for 12 software engineers. Restructured teams, created and supported shared libraries, redesigned systems, and unified development processes, which improved software quality and delivery schedules, reduced costs, and enabled inclusion of student cooperative Computer Science majors as junior software engineers. Two of my former reports are now senior principal software engineering leads at Microsoft and Amazon, one is a PhD Principal Member of Technical Staff at Sandia National Labs.
- Co-founded Cognitive Computing Lab with Prof Ashwin Ram (now Technical Director of AI, Google).
- Working with econometrician investigating patterns of specialization in Physics research, wrote **Python NLTK** and **Numpy text mining** analysis and presentation apps. Published in journal Scientometrics.
- Developed an electronic warfare data management system with novel data representations, algorithms, and user interfaces (**Java**, **JSP**, **HTML**, **Tomcat**) that won a \$2M follow-on project.

Software Engineer	Internet Security Systems (Now IBM)	Aug 2000 to Nov 2001
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Rated in top 5% of software engineers. Key player in two **eXtreme Programming** projects using **Java** servlets, **RMI**, and **JDBC**. One of two lead software engineers on UI/application server team, developed major parts the design, established build procedures, and mentored other developers. Received formal award for contributions to the usability and design of the product. Chosen from the 12 engineers on first team for important core position on company's most important forward-looking project.

Software Engineer, IT Manager	USAF, Columbus AFB, MS	May 1998 to Aug 2000
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Conceived, championed, designed and built flight management system at heart of two squadrons flying up to 200 flights daily. Four front-end applications in Borland **C++ Builder**, Interbase RDBMS server, and application logic in **C++**. Saved 8000 person-hours per year, improved command and control 100%.

T-37 Instructor Pilot	USAF, Columbus AFB, MS	Jul 1997 to Jun 2000
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Turned new Air Force officers into military jet pilots in USAF Primary Jet Pilot Training. Taught fundamentals, aerobatics, instrument flight in poor weather, and formation flying. Flew daily missions with young students in a dynamic, high stress flying environment regularly making critical real-time decisions and using expert judgment to achieve the best training and flight safety.

KC-135 Pilot	USAF, McConnell AFB, Wichita, KS	Aug 1995 to Mar 1997
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Executed hundreds of successful missions in worldwide military operations. Outstanding crew award during operation Southern Watch in Saudi Arabia. Highest co-pilot position in squadron (Stan/Eval). One of only two co-pilots in squadron selected for coveted special operations qualification.

Space Training Instructor	Lowry AF, and Vandenberg AFB	Jun 1992 to Mar 1995
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Taught mechanics to students training to become space operations officers. Every class rated me as their best instructor. Achieved highest pass rate in all of UST while teaching its most difficult course.

Education

Ph.D.	2017	Georgia Institute of Technology	Computer Science
M.S.	2004	Southern Polytechnic State University	Computer Science
B.S.	1990	United States Air Force Academy	Basic Engineering Curriculum

Selected Publications

- [1] Christopher Simpkins and Charles L. Isbell. Composable modular reinforcement learning. In *Proceedings of the 33rd National Conference on Artificial Intelligence (AAAI)*, Honolulu, HI, February 2019.
- [2] Christopher Simpkins, Spencer Rugaber, and Charles L. Isbell. DSL design for reinforcement learning agents. In *Workshop on Domain-Specific Language Design and Implementation*, October 2017.
- [3] Christopher Simpkins. Integrating reinforcement learning into a programming language. In *Proceedings of the 2010 SIGART/AAAI Doctoral Consortium*, Atlanta, GA, July 2010.
- [4] Chiara Franzoni, Christopher Simpkins, Li Baoli, and Ashwin Ram. Using content analysis to investigate the research paths chosen by scientists over time. *Scientometrics*, 83(1):321–335, April 2010.
- [5] Christopher Simpkins, Sooraj Bhat, and Charles Isbell. Towards adaptive programming: Integrating reinforcement learning into a programming language. In *OOPSLA '08: ACM SIGPLAN Conference on Object-Oriented Programming, Systems, Languages, and Applications, Onward! Track*, Nashville, TN USA, October 2008.

Other

- Member, Knights of Columbus charitable fraternal organization.
- Volunteer: [Black Girls Code](#); [P-TECH](#), Carver HS, Atlanta; IBM Veterans mentor, coach.
- **GTRI Project Director Certificate**, 2010 consisting of nine professional development courses.
- **GTRI Mentor/Mentee Program**, 2003 for high-performers identified as future leaders.
- **PADI Master Scuba Diver Trainer** and DAN first aid instructor. See <http://prost.us/>.
- Fluent in **German** (Goethe C1 01652-GZ-C1-18-86) and **French** (DELF B2 033054-002105).