

ALVIN AU YOUNG

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- Research Interests** Distributed Systems, Cloud Resource Management, Applied Economics, Data Analytics, Sustainability
- Education** *Ph.D., M.S., Computer Science, University of California, San Diego, Winter 2010*
Thesis: Practical Market-based Resource Allocation; Advisor: Alex C. Snoeren
La Jolla, CA
- B.S., EECS, University of California, Berkeley, Spring 2002*
Summa Cum Laude, GPA 3.95/4.0; Minor in Business Administration, Haas School
Berkeley, CA
- Awards and Honors** **CIFellows Postdoctoral Fellowship**, Computing Research Association/NSF (2010+)
Summer Graduate Teaching Fellowship, University of California, San Diego (2008)
NSF Graduate Research Fellowship, National Science Foundation (2003-06)
Powell-Focht Fellowship, University of California, San Diego (2002-03)
EECS Honors Degree Program, University of California, Berkeley (2000-02)
Altera Scholarship, University of California, Berkeley (2001): 1 of 4 recipients
CA Alumni Leadership Scholarship, University of California, Berkeley (1998-02)
- Recent Experience** **Postdoctoral Fellow**, Hewlett Packard Labs, Palo Alto, CA 2010 - Present
◇ *NoSQL/BigData architectures*: design and implement NoSQL/scale-out workload characterization to drive balanced server designs;
◇ *Complex data analytics*: design and evaluate distributed storage for (1) interactive graph analytics and (2) complex and continuous array-based analytics;
◇ *Provider-side provisioning in Infrastructure-as-a-Service (IaaS)*: investigate multi-tenancy, QoS and sustainability issues in cloud resource provisioning.
- Research Assistant**, University of California, San Diego, 2003 - 2010
Design, implement and deploy market-based allocation policies in large-scale distributed systems, leveraging theoretic foundations in economics and computer science.
- Instructor**, University of California, San Diego, Summer 2008
Develop lectures, assignments and exams for undergraduate Operating Systems course. 100% instructor recommendation and 100% course recommendation.
- Research Intern**, Hewlett Packard Labs, Palo Alto, CA, Summer 2005, 2006
Design and evaluate SLA constructs and algorithms for a service-oriented job-execution service to support heterogeneous job utilities and aggregate constraints.
- Publications** ◇ *Using R for Iterative and Incremental Processing*; Venkataraman, S., Roy, I., AuYoung, A., Schreiber, R.; Usenix HotCloud 2012
◇ *Designing Balanced Memcached Servers for Web 2.0 Workloads*; AuYoung, A., Lim, K., Ramirez, L., Chang, J., Ranganathan, P., Rajaram, P., Worley, F.; HP Tech Con 2012
◇ *Distributed Storage and Interactive Analytics for Graph-Structured Data*; Lee, M.M., Roy, I., AuYoung, A., Talwar, V., Zhou, Y.Y.; HP Labs Technical Report 2012
◇ *Presto: Complex and Continuous Analytics with Distributed Arrays*; Venkataraman, S., Roy, I., Schreiber, R.S., AuYoung, A.; HP Labs Technical Report 2012
◇ *System-level Implications of Disaggregated Memory*; Lim, K., Turner, Y., Santos, J., AuYoung, A., Chang, J., Ranganathan, P., Wenisch, T.; HPCA 2012

- ◇ *Transcloud: Design Considerations for High-Performance Cloud Architecture across Multiple Administrative Domains*; Bavier, A., Yuen, M., AuYoung, A., Blaine, J., McGeer, R., Coady, Y., Matthews, C., Pearson, C., Snoeren, A., Mambretti, J.; CLOSER 2011
- ◇ *Evaluating the Impact of Inaccurate Information in Utility-Based Scheduling*; AuYoung, A., Vahdat, A., Snoeren, A.; ACM/IEEE Supercomputing 2009
- ◇ *Two Auction-Based Resource Allocation Environments: Design and Experience*; AuYoung, A., Buonadonna, P., Chun, B., Ng, C., Parkes, D., Shneidman, J., Snoeren, A., Vahdat, A.; Wiley 2009
- ◇ *Service contracts and aggregate utility functions*; AuYoung, A., Grit, L., Wiener, J., Wilkes, J.; ACM HPDC 2006
- ◇ *Why Markets Could (But Don't Currently) Solve Resource Allocation Problems in Systems*; Shneidman, J., Ng, C., Parkes, D., AuYoung, A., Snoeren, A., Vahdat, A., Chun, B.; HotOS-X 2005
- ◇ *Mirage: A Microeconomic Resource Allocation System for Sensornet Testbeds*; Chun, B., Buonadonna, P., AuYoung, A., Ng, C., Parkes, D., Shneidman, J., Snoeren, A., Vahdat, A.; IEEE EmNets 2005
- ◇ *Resource Allocation in Federated Distributed Computing Infrastructures*; AuYoung, A., Chun, B., Snoeren, A., Vahdat, A.; OASIS 2004

Presentations

- Distributed storage and interactive analytics for graph-structured data; Graph Exploitation Symposium, MIT Lincoln Labs, April 2012
- Cloud computing in GENI; GEC 12 panel member, Nov. 2011
- Scalable storage and analytics for graphs; HPL Analytics Day, Nov. 2011
- Transcloud: federated cloud services in GENI; GEC 10 poster and demo, Jul. 2011
- Federated resource allocation with Eucalyptus; GEC 9 poster and demo, Nov. 2010

Patent Applications

- 700209769, Accelerating memcached checkpointing with FPGA
- 700209762, Memory blade key-value cache capacity expansion in hyperscale
- 700209740, Event processing for graph structured data
- 700208866, Offloading of in-memory key-value cache operations
- 700208813, Data organization for key-value caches on disaggregated memory
- 700208384, Concerto: Efficient, distributed graph store
- 700208383, Distributed system for graph storage and traversal
- 700207731, Multichannel, disk based, data logging system
- 200601378-1, Workflow control using an aggregate utility function (issued)

Service

- External reviewer, IEEE Transactions on Parallel and Distributed Systems, 2012
- External reviewer, Springer Journal of the Network and Systems Management, 2012
- External reviewer, IEEE Transactions on Network and Service Management, 2010

Relevant Skills and Coursework

Programming Python, Java, C/C++, PHP, Matlab, PostgreSQL
Computer Science: Operating Systems, Computer Networks, Distributed Systems, Data Structures, Algorithms, Computability and Complexity, Cryptography;
Economics: Microeconomics, Game Theory, Behavioral Economics;
Mathematics: Data Mining/Predictive Analytics (partial audit), Statistics, Random Processes, Discrete Mathematics, Linear Algebra, Multivariable Calculus