

Huascar A. Sanchez

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Summary

I research how to make software engineers more productive.

Research Interests: Software Engineering, Human Computer Interaction, and Information Retrieval.

Education

- **University of California at Santa Cruz**, Santa Cruz, CA *December, 2015*
Ph.D. Computer Science, 2009 – 2015
 - *Dissertation:* “Source Code Curation Tooling for the Code Forager”
(*Advisor:* Jim Whitehead)
- **San Jose State University**, San Jose, CA
M.S. Software Engineering, 2006
 - *Thesis:* “Building Systems Using Patterns: Creating Knowledge Maps”
(*Advisor:* M.E. Fayad)
- **Catholic University**, Managua, Nicaragua
B.S. Information Systems Engineering, 2001

Research

Publications

Compton, K. Logas, H., Osborn, J., Chakrabortti, C., Coffman, K., Fava, D., Lederle-Ensign, D., Lin, Z., Mazeika, J., Mobramaein, A., Pagnutti, J., **Sanchez, H.**, Whitehead, J., Murray, J., and Laurel, B. (2016). Design Lessons From Binary Fission: A Crowd Sourced Game for Precondition Discovery. 1st International Joint Conference of DiGRA and FDG (DiGRA/FDG 2016). Dundee, Scotland, UK, August 1–6, 2016.

Kahsai, T., Rümmer, P., **Sanchez, H.**, and Schäfer, M. (2016). JayHorn: A Framework for Verifying Java programs. 28th International Conference on Computer Aided Verification (CAV), 2016. Toronto, ON, Canada, July 17–23, 2016.

Sanchez, H., Murray, J., and Sanchez, D. (2016). Putting Your Passwords on Self Destruct Mode: Beating Password Fatigue. 12th Symposium on Usable Privacy and Security. Denver, CO, USA, June 22, 2016.

Li, W., Saidi, H., **Sanchez, H.**, Schäfer, M., and P. Schweitzer (2016). Detecting Similar Programs via the Weisfeiler-Leman Graph Kernel. 15th International Conference on Software Reuse (ICSR 2016). Limassol, Cyprus, June 5–7, 2016.

Sanchez, H., Whitehead, J., and Schäfer, M. (2016). Multistaging to Understand: Distilling the Essence of Java Code Examples. 24th IEEE International Conference on Program Comprehension (ICPC 2016), Austin, TX, May 16–17, 2016.

Sanchez, H., Whitehead, J. (2015). Source Code Curation on StackOverflow: The Vesperin System. 37th IEEEACM International Conference on Software Engineering (ICSE 2015). Florence, Italy, May 16–24, 2015.

Compton, K., Lederle-Ensign, D., Lin, Z., Mazeika, J., Mobramaein, A., Pagnutti, J., **Sanchez, H.**, and Whitehead, J. (2015). BotPrint: Casual Robotic Evolution. 1st Workshop on Computational Creativity and Games (CCGW 2015). Park City, UT, USA, June 28–28, 2015.

Logas, H., Whitehead, J., Mateas, M., Vallejos, R., Scott, L., Shapiro, D., Murray, J., Compton, K., Osborn, J., Salvatore, O., Lin, Z., **Sanchez, H.**, Shavlovsky, M., Cetina, D., Clementi, S., and Lewis, C. Software Verification Games: Designing Xylem, The Code of Plants. 9th International Conference on the Foundations of Digital Games (FDG 2014). Ft. Lauderdale, FL, USA, April 3–7, 2014.

Sanchez, H. (2013). SNIPR: Complementing Code Search with Code Retargeting Capabilities. 35th International Conference on Software Engineering (ICSE 2013). San Francisco, CA, USA, May 18–26, 2013.

Jimenez, I., **Sanchez, H.**, Tran, Q. T., & Polyzotis, N. (2012). Kaizen: A Semi-Automatic Index Advisor. Proceedings of the 2012 ACM SIGMOD International Conference on Management of Data (SIGMOD 2012). Scottsdale, AZ, USA, May 20–24, 2012. SIGMOD, 685–688.

Jimenez, I., LeFevre, J., Polyzotis, N., **Sanchez, H.**, & Schnaitter, K. (2011). Benchmarking Online Index-Tuning Algorithms. IEEE Data Eng. Bull., 34(4), 28–35.

Fayad, M. E., **Sanchez, H. A.**, & Singh, S. K. (2010). Knowledge Maps - Fundamentally Modular Approach to Software Architecture, Design, Development and Deployment. 19th International Conference on Software Engineering and Data Engineering (SEDE-2010). San Francisco, CA, USA, June 16–18, 2010. SEDE, 127–133.

Sanchez, H. A., & Fayad, M. E. (2006). The Branding Analysis Pattern. 2006 IEEEACM International Conference on Computer Systems and Applications (AICCSA 2006). Dubai/Sharjah, UAE, March 8–11, 2006. AICCSA, 361–364.

Fayad, M. E., Hamza, H. S., & **Sanchez, H. A.** (2005). Towards Scalable and Adaptable Software Architectures. 2005 IEEE International Conference on Information Reuse and Integration (IRI 2005). Las Vegas, NV, USA, 2005. IRI, 102–107.

Gresh, J., McKim, J., **Sanchez, H.** (2005). The Dynamic Mapping Design Pattern. 12th Pattern Language of Programs Conference (PLOP 2005). Allerton Park, Monticello, IL, USA, September 7–10, 2005.

Fayad, M. E., Hamza, H. S., & **Sanchez, H. A.** (2003). A Pattern Language for an Effective Class Responsibility Collaborator (CRC) Cards. 2003 IEEE International Conference on Information Reuse and Integration (IRI 2003). Las Vegas, NV, USA, October 27–29, 2003. IRI, 584–587.

Books

- Fayad, M. E., **Sanchez, H. A.**, Hegde, S. G. K., Basia, A., & Vakil, A. (2014). Software Patterns, Knowledge Maps, and Domain Analysis. CRC Press, 2014. ISBN 9781466571433.

Employment

SRI International, Computer Science Laboratory, Menlo Park, CA

- Postdoctoral Fellow, November 2015–present.
Worked on building a mining infrastructure that leverages deep program analysis and big data analytics to facilitate new mechanisms to identify/repair program errors, and new specification-based tools to synthesize new, custom programs (CAV 2016, ICSR 2016, and ICPC 2016).

University of California at Santa Cruz, Department of Computer Science, Santa Cruz, CA

- Research Assistant, Jim Whitehead, Fall 2013–Fall 2015.
Worked on two crowdsourced program verification games (FDG 2014 & DiGRA/FDG 2016):
 - Modeled the procedural generation of game screens as a layout optimization problem. Designed/implemented different algorithms to solve it (AS3).
 - Increased assets' loading performance in games' Web version by 45% after extending games' existing loading system with *asynchronous batch assets loading* (AS3, LoaderMax).
- Research Assistant, Jim Whitehead, Fall 2011–Fall 2012.
Worked on Botprint; a mixed initiative robot design Web tool (CCGW 2015):
 - Participated in the design and implementation of Botprint's mixed-initiative algorithms for robot design (Javascript, Three.js).
 - Investigated the interactions between placement and detailed routing of robot components. These iterations were key to finding a set of optimal placements, on a laser-cuttable chassis, for sketched robot components.
- Research Assistant, Neoklis Polyzotis, Fall 2010–Fall 2011.
Worked on DBTune; a library for semi-automatic index tuning (SIGMOD 2012 & IEEE Data Eng. Bull. 2011).
 - Redesigned and implemented the second iteration of the *DBTune* library (Scala, Java, PostgreSQL).

Infomotor Inc., San Francisco, CA

- Consultant, 2010 – 2012
 - Developed Web applications for streamlining both reporting and presentation of critical data, monitoring key performance metrics, and delivering understandable and actionable data (Javascript, C#, SQLServer).

Pearson VUE, Bloomington, MN

- Software Engineer, 2006 – 2009
 - Supported distributed applications responsible for delivering over 4 million computer-based tests a year across the globe for clients in diverse markets, such as licensure, certification (Java, SQLServer, In-house Job Scheduler).

Teaching

University of California at Santa Cruz, Santa Cruz, CA

Teaching Assistant, Brenda Laurel, CPM 178: Human-Centered Design Research, Winter 2015.

Teaching Assistant, Luca de Alfaro, CMPS 121: Mobile Applications, Spring 2012.

Teaching Assistant, Terry Allen, TIM 50: Business Information Systems, Fall 2011.

San Jose State University, San Jose, CA

Teaching Assistant, M.E. Fayad, CMPE 296G: Software Architectures, Spring 2005.

Teaching Assistant, M.E. Fayad, CMPE 195G: Software Patterns, Spring 2004.

Teaching Assistant, M.E. Fayad, CMPE 132: Software Engineering II, Fall 2004.

Selected Graduate Coursework

- Software Engineering, Human Computer Interaction, Information Retrieval, Data Mining, Machine Learning, Design and Implementation of Database Systems, Topics in Database Systems (Cloud Computing), Computational Models and Complexity, and Advance Computer Graphics (Procedural Content Generation).

References

Available upon request.

Last updated: July 8, 2016 • Typeset in L^AT_EX
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