FRANCISCO SERVANT

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RESEARCH INTERESTS

My research focuses on software development productivity and software quality. I use software evolution and program analysis to create practical, efficient, and human-friendly techniques and tools that provide automatic support for all stages of software development.

RESEARCH KEYWORDS

Software engineering; software development productivity; mining software repositories; program comprehension; expertise identification; software evolution; software visualization

EMPLOYMENT

Virginia Polytechnic Institute and State University, Blacksburg, VA **August 2015 – Present**
Assistant Professor
I perform research in software development productivity, mining software repositories, program analysis, and computer-supported collaborative work.

University of California, Irvine, CA **March 2008 – June 2015**
Graduate Research Assistant
I performed research in software development productivity, mining software repositories, program analysis, and computer-supported collaborative work.

Microsoft Research, Redmond, WA **June 2011 – Sept. 2011**
Research Intern
I performed research to mitigate the complexity of branching within the development process, and I implemented a tool to report my findings.

DreamWorks Animation, Glendale, CA **June 2008 – Sept. 2008**
Research & Development Intern
I surveyed developers to study how they used the internal revision-control system. I also designed new architectures, performed bug fixes, added test cases and implemented new features for it.

Microsoft Corporation, Madrid, Spain **July 2005 – July 2007**
SQL Server Development Support Engineer
I provided reactive support for administration and development of SQL Server for European customers by phone, email, and on-site. I frequently resolved critical situations with direct impact on the customer's business.

Valeo Lighting Systems, Martos, Spain **Aug. 2004 – Oct. 2004**
Software Engineer Intern
I designed and implemented an automated technical support system, deployed cryptography infrastructure (PGP), and performed technical support tasks for Microsoft software.

EDUCATION

Ph.D. in Software Engineering **Sept. 2009 – June 2015**
University of California, Irvine
Advisor: James A. Jones
Dissertation Title: "*A Characterization and Partial Automation of the Multi-revision, Fine-grained Analysis of Code History as an Efficient and Accurate Mechanism to Support Software Development*"

M.S. in Information and Computer Sciences, Software track **Sept. 2007 – Aug. 2009**
University of California, Irvine
Advisor: André van der Hoek
Thesis Title: "*Spheres of Influence: Enhancing Support of Indirect Conflicts through Workspace Awareness*"

B.S. in Computer Science **Sept. 2000 – Dec. 2005**
University of Granada, Spain
Advisor: Juan Carlos Torres
Thesis Title: "*Snap: A Dental Prints Recognition System*"

ADDITIONAL EDUCATION

Teaching Excellence Program **April 2015 – June 2015**
University of California, Irvine

Science Communication Program **Jan 2015 – March 2015**
Physics Department, University of California, Irvine

Power Speech Public Speaking Program **April 2014 – June 2014**
Drama Department, University of California, Irvine

Mentoring Excellence Program **May 2014 – June 2014**
University of California, Irvine

Mining Software Repositories Summer School **June 2010**
School of Computing, Queen's University, Kingston, ON, Canada

European Union Fellowship for Education Abroad **Sept. 2003 – June 2004**
School of Computing, Dublin City University, Ireland

CONFERENCE PUBLICATIONS, PEER-REVIEWED

- James C. Davis, Christy A. Coghlan, **Francisco Servant**, and Dongyoon Lee. "The Impact of Regular Expression Denial of Service (REDOS) in Practice: An Empirical Study at the Ecosystem Scale". Proceedings of the 26th ACM Joint European Software Engineering Conference and Symposium on the Foundations of Software Engineering (ESEC/FSE'18), Lake Buena Vista, FL, U.S.A., November 2018, to appear. ***Acceptance Rate: 19%***
- Xianhao Jin, **Francisco Servant**, "The Hidden Cost of Code Completion: Understanding the Impact of the Recommendation-list Length on its Efficiency". Proceedings of the 15th International Conference on Mining Software Repositories (MSR 2018), Mining Challenge Track, Gothenburg, Sweden, May 2018, to appear.
- **Francisco Servant**, James A. Jones, *"Fuzzy Fine-grained Code-history Analysis"*. Proceedings of the 39th International Conference on Software Engineering (ICSE 2017), Buenos Aires, Argentina, May 2017, pp. 746–757. ***Acceptance Rate: 16%***
- Aakash Gautam, Saket Vishwasrao, **Francisco Servant**, "An Empirical Study of Activity, Popularity, Size, Testing, and Stability in Continuous Integration". Proceedings of the 14th International Conference on Mining Software Repositories (MSR 2017), Mining Challenge Track, Buenos Aires, Argentina, May 2017, pp. 495–498.
- **Francisco Servant**, *"Supporting Bug Investigation using History Analysis"*. Proceedings of the 28th IEEE/ACM International Conference on Automated Software Engineering, Doctoral Symposium Track (ASE 2013), Silicon Valley, California, November 2013, pp. 754-757.
- **Francisco Servant**, James A. Jones, *"Chronos: Visualizing Slices of Source-Code History"*. Proceedings of the 1st IEEE International Working Conference on Software Visualization, Tool Track (VISSOFT 2013), Eindhoven, Netherlands, September 2013, pp. 1-4.
- **Francisco Servant**, James A. Jones, *"History Slicing: Assisting Code-Evolution Tasks"*. Proceedings of the 20th International Symposium on Foundations of Software Engineering (FSE 2012), Research Triangle Park, NC, USA, November 2012, pp. 43:1-43:11. ***Acceptance Rate: 16.9%***
- **Francisco Servant**, James A. Jones, *"WhoseFault: Automatic Developer-to-Fault Assignment Through Fault-Localization"*. Proceedings of the 34th International Conference on Software Engineering (ICSE 2012), Zurich, Switzerland, June 2012, pp. 36-46. ***Acceptance Rate: 21%***
- **Francisco Servant**, James A. Jones, *"History Slicing"*. Proceedings of the 26th IEEE/ACM International Conference on Automated Software Engineering (ASE 2011), Lawrence, Kansas, USA, November 2011, pp. 452-455. ***Acceptance Rate: 37%***

WORKSHOP PUBLICATIONS, PEER-REVIEWED

- **Francisco Servant**, James A. Jones, André van der Hoek, *"CASI: Preventing Indirect Conflicts through a Live Visualization"*. Proceedings of the International Workshop on Cooperative and Human Aspects of Software Engineering (CHASE 2010), Cape Town, South Africa, May 2010, pp. 39-46.

OTHER PUBLICATIONS

- **Francisco Servant**, *"A Characterization and Partial Automation of the Multi-revision, Fine-grained Analysis of Code History as an Efficient and Accurate Mechanism to Support Software Development"*. Ph.D. Thesis. University of California, Irvine. June 2015.

- **Francisco Servant**, *"Spheres of Influence: Enhancing Support of Indirect Conflicts through Workspace Awareness"*. M.S. Thesis. University of California, Irvine. August 2009.
- **Francisco Servant**, Jose Javier Moreno, *"Snap: A Dental Prints Recognition System"*. B.S. Thesis. University of Granada, Spain. December 2005.

POSTERS

- Lykes Claytor, **Francisco Servant**, *"Understanding and Leveraging Developer Inexpertise"*. Proceedings of the 39th International Conference on Software Engineering (ICSE 2018), Göthenburg, Sweden, May 2018.
- **Francisco Servant**, James A. Jones, *"Fuzzy Fine-grained Code-history Analysis"*. Proceedings of the 39th International Conference on Software Engineering (ICSE 2017), Buenos Aires, Argentina, May 2017, pp. 746–757.
- **Francisco Servant**, *"Supporting Bug Investigation using History Analysis"*. International Conference on Automated Software Engineering (ASE 2013), Silicon Valley, California, November 2013.
- **Francisco Servant**, James A. Jones, *"Chronos: Visualizing Slices of Source-Code History"*. Working Conference on Software Visualization (VISSOFT 2013), Eindhoven, Netherlands, September 2013.
- **Francisco Servant**, James A. Jones, *"History Slicing"*. International Conference on Automated Software Engineering (ASE 2011), Lawrence, Kansas, USA, November 2011.
- Tiago Proença, **Francisco Servant**, Nilmax Moura, André van der Hoek. *"Lighthouse - A Coordination Platform Based on Emerging Design".* ISR Research Forum 2009, Irvine, California, USA, June 2009.

CONFERENCE PRESENTATIONS

- "An Empirical Study of Activity, Popularity, Size, Testing, and Stability in Continuous Integration". Proceedings of the 14th International Conference on Mining Software Repositories (MSR 2017), Mining Challenge Track, Buenos Aires, Argentina, May 2017.
- *"Fuzzy Fine-grained Code-history Analysis"*. Proceedings of the 39th International Conference on Software Engineering (ICSE 2017), Buenos Aires, Argentina, May 2017.
- *"Supporting Bug Investigation using History Analysis"*. International Conference on Automated Software Engineering, Doctoral Symposium Track (ASE 2013), Silicon Valley, California, November 2013.
- *"Chronos: Visualizing Slices of Source-Code History"*. Working Conference on Software Visualization, Tool Track (VISSOFT 2013), Eindhoven, Netherlands, September 2013.
- *"History Slicing: Assisting Code-Evolution Tasks"*. International Symposium on Foundations of Software Engineering (FSE 2012), Research Triangle Park, NC, USA, November 2012.
- *"WhoseFault: Automatic Developer-to-Fault Assignment Through Fault-Localization"*. International Conference on Software Engineering (ICSE 2012), Zurich, Switzerland, June 2012.
- *"History Slicing"*. International Conference on Automated Software Engineering (ASE 2011), Lawrence, Kansas, USA, November 2011.
- *"CASI: Preventing Indirect Conflicts through a Live Visualization"*. Workshop on Cooperative and Human Aspects of Software Engineering (CHASE 2010), Cape Town, South Africa, May 2010.

INVITED PRESENTATIONS

- "*Supporting Software Development through Code History Analysis*". Computer Science Graduate Seminar. Virginia Commonwealth University (VCU), Virginia, USA, October 2016.
- "*Improving Software Development through Data Analytics*". Center for the Enhancement of Engineering Diversity (CEED) Seminar. Virginia Tech, Virginia, USA, September 2016.
- "Automatic *Software Development Support*". Graduate Recruitment Seminar. Virginia Tech, Virginia, USA, March 2016.
- "*Supporting Software Development through Code History Analysis*". Computer Science Graduate Seminar. Virginia Tech, Virginia, USA, February 2016.
- *"Understanding Bugs through Code-history Analysis".* ISR Research Forum, Irvine, California, USA, May 2014.
- *"Supporting Bug Investigation using History Analysis"*. Universidad de Sevilla, Spain. December 2013.
- *"History Slicing: Assisting Code-Evolution Tasks*". Universidad Rey Juan Carlos, Madrid, Spain. October 2013.
- *"Un futuro de oportunidades".* CITIC-UGR Research Center, Granada, Spain, October 2013.
- *"Supporting Code-Evolution Tasks with Code History".* ISR Research Forum, Irvine, California, USA, May 2013.
- *"History Slicing".* ISR Research Forum, Irvine, California, USA, May 2012.
- *"BranchMon: A Branch Analytics Tool".* Microsoft Research, Redmond, Washington, USA, September 2011.
- *"Automatic Developer-to-Failure Assignment".* Microsoft Research, Redmond, Washington, USA, July 2011.
- *"Lighthouse - A Coordination Platform Based on Emerging Design".* ISR Research Forum, Irvine, California, USA, June 2009.
- *"Snap: A Dental Prints Recognition System"*. Microsoft Corporation, Madrid, Spain, January 2006.

TEACHING EXPERIENCE

- CS 6704: Software Engineering Analytics and Automation. Principal Instructor. Virginia Tech. Fall 2016.
- CS 3704: Intermediate Software Design and Engineering. Principal Instructor. Virginia Tech. Spring 2016, Spring 2018.
- CS 5704: Software Engineering. Principal Instructor. Virginia Tech. Fall 2015, Fall 2017.
- Software Analysis and Testing. Guest Lecture: "Continuous Integration and Delivery", University of California, Irvine. Spring 2015.
- Software Testing, Analysis, and Quality Assurance. Guest Lecture: "Continuous Delivery", University of California, Irvine. Fall 2014.
- Software Analysis and Testing. Guest Lecture: "Continuous Integration", University of California, Irvine. Spring 2014.
- Informatics Research Topics. Teaching Assistant, University of California, Irvine. Spring 2012.
- Software Testing and Quality Assurance. Teaching Assistant, University of California, Irvine. Spring 2012.

- Informatics Core II. Teaching Assistant, University of California, Irvine. Winter 2012.
- Senior Design Project. Teaching Assistant, University of California, Irvine. Winter 2012.
- Requirements Analysis & Engineering. Teaching Assistant, University of California, Irvine. Fall 2011.
- Senior Design Project. Teaching Assistant, University of California, Irvine. Fall 2011.
- Software Analysis and Testing. Guest Lecture: “Automatic Expertise Identification”, University of California, Irvine. Fall 2011.

STUDENTS

Graduate Thesis Advisees

- Murad Hassan, Ph.D. Computer Science (2018–Present)
- Mohammed Elarnaoty, Ph.D. Computer Science (2018–Present)
- Xianhao Jin, Ph.D. Computer Science (2017– Present)
- Kanagaraj Nachimuthunallasamy, M.S. Computer Science, (2017–Present)
- Khadijah Al Safwan, Ph.D. Computer Science, (2016–Present)
- Frank Lykes Claytor, M.S. Computer Science, (2017–Graduated 2018)

Graduate Thesis Committee Memberships

- Zheng Song, Ph.D. Computer Science (2018–Present)
- Breno Dantas Cruz, Ph.D. Computer Science (2018–Present)
- Peeratham Techapalokul, Ph.D. Computer Science (2017–Present)
- Ayaan Kazerouni, Ph.D. Computer Science (2017–Present)
- Bob Edmison, Ph.D. Computer Science (2016–Present)
- Bharti Wadhwa, Ph.D. Computer Science (2015–Present)
- Louis Michael, M.S. Computer Science (2018–Present)
- Aabhas Bhatia, M.S. Computer Science (2018–Present)
- Da Pu, M.S. Computer Science (2017–Present)
- Mukund Rajagopal, M.S. Computer Science (2017– Graduated 2018)
- Nischel Kandru, M.S. Computer Science (2017–Graduated 2018)
- Soumik Ghosh, M.S. Computer Science (2016–Graduated 2017)
- Zahra Ghaed, M.S. Computer Science (2016–Graduated 2017)
- Jing Pu, M.S. Computer Science (2016–Graduated 2016)

Undergraduate Research Advisees

- Farhan Ibrahim, B.S. Computer Science, Virginia Tech (Fall 2018)
- Jahdiel Couchman, B.S. Computer Science, UNC Charlotte (Summer 2017)
- Jeremy Anoc, B.S. Information and Computer Science, UC Irvine (2012–Graduated 2013)

EXTERNAL SERVICE

- PC member, International Conference on Software Engineering (ICSE), NIER track 2019.
- Reviewer, NSF panel, 2018.
- PC member, International Conference on Software Maintenance and Evolution (ICSME), 2018.
- PC member, International Conference on Software Maintenance and Evolution (ICSME), Artifacts track, 2018.
- PC member, International Symposium on the Foundations of Software Engineering (FSE), NIER track, 2018.
- PC member, International Conference on Program Comprehension (ICPC), Industry Track, 2018.
- PC member, International Conference on Program Comprehension (ICPC), Tool-Demonstration Track, 2018.
- Reviewer, IEEE Software, 2018.
- Reviewer, IEEE Transactions on Software Engineering Journal (TSE), 2016, 2017, 2018.
- Reviewer, Journal of Internet Services and Applications (JISA), 2015.
- Reviewer, Journal of Systems and Software (JSS), 2015, 2018.
- External reviewer, International Symposium on the Foundations of Software Engineering (FSE), 2014.
- External reviewer, International Conference on Software Engineering (ICSE), 2014.
- Reviewer, Central European Journal of Computer Science (CEJCS), 2013.
- External reviewer, International Conference on Software Engineering (ICSE), 2013.
- External reviewer, Working Conference on Software Visualization, Tool Track (VISSOFT), 2013.
- External reviewer, Working Conference on Software Visualization, NIER Track (VISSOFT), 2013.
- PC member, International Conference on Program Comprehension (ICPC), Tool-Demonstration Track, 2012.
- PC member, International Working Conference on Mining Software Repositories (MSR), Mining Challenge Track, 2012.
- External reviewer, International Conference on Software Engineering (ICSE), 2012.

INTERNAL SERVICE

- Committee member, Graduate admissions at the Computer Science department at Virginia Tech, 2016-2018.
- Host for the Multicultural Academic Opportunities Program (MAOP), providing research internships to groups underrepresented in STEM, 2017.
- Committee member, Hispanic Caucus at Virginia Tech, 2015-2018.
- Organizer, Systems reading group seminar, Fall 2016.

AWARDS

- Professional Development Award for Hispanic/Latino Faculty, 2016
- Virginia Tech Provost's Mentoring Project Award, 2016
- NSF Travel Award for ICSE 2016
- NSF Travel Award for VISSOFT 2013
- SIGSOFT-CAPS Travel Award for ICSE 2012
- Dean's Fellowship, Donald Bren School of Information and Computer Sciences, 2009 – 2013
- Caja Madrid Foundation Fellowship for Graduate Studies, 2007 – 2009

PROFESSIONAL AFFILIATIONS

- Institute of Electrical and Electronics Engineers (IEEE) 2013 – Present
- IEEE Computer Society 2013 – Present
- Association for Computing Machinery (ACM) 2010 – Present
- ACM Special Interest Group on Software Engineering (ACM SIGSOFT) 2010 – Present
- Institute for Software Research at UC Irvine (ISR) 2007 – Present

REFERENCES

References available upon request