

Dr. Spencer Sevilla

Postdoctoral Researcher, University of Washington

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Research Interests

Community networks, LTE, Rural WISPs, Web caching

Positions Held

Postdoctoral Researcher: University of Washington. Seattle, WA, 2017-Present
Project Lead on CoLTE, the first community LTE network-in-a-box. Oversaw initial project development, code-hardening, equipment logistics, and initial deployment in rural Indonesia.

Principal Research Scientist: SUNS-Tech, Inc. Milpitas, CA, 2014-2017
P.I./Project Lead on U.S. Naval Air Systems Command Project N10A-T006: Novel Approaches to Service Virtualization in Mobile Ad-Hoc Networks

Visiting Scholar: Palo Alto Research Center, Inc. (PARC) Palo Alto, CA, 2012-2014
Worked on NDN/CCN core implementation, architecture, and related research

PhD Candidate: University of California at Santa Cruz. Santa Cruz, CA, 2011-2017
My thesis tied together many themes in Ad-hoc/MANET routing, Internet indirection, host identification and mobility, and information-centric networking (ICN)

Software Engineer: Apple, Inc. Cupertino, CA, 2010-2011
Worked on kernel TCP/IP stack and memory optimization for OSX 10.{6,7,8} and iOS {4,5}

Education

University of California at Santa Cruz Santa Cruz, CA
Ph.D Computer Science June 2017
Thesis: "Improving the Internet Architecture through Indirection and Virtualization"
Advisor: J.J. Garcia-Luna-Aceves

University of California at Davis Davis, CA
B.S. Computer Science, Summa cum Laude June 2010
Thesis: "Dynamic Path Assignment in CW-Aware Mesh Networks"
Advisor: Chip Martel

Field Skills

Wilderness First Aid Certification: Received September 2017, expires September 2019

Private Pilot License (ASEL): Received June 13, 2018, current.

Languages: Spanish (conversational)

Funding

Amazon Catalyst Grant: “Island Cells: Connecting the Next Three Billion with Community LTE,” Project Leader/PI, 25K USD.	2018
Mozilla Wireless Innovation for a Networked Society (WINS) Challenge: “The Standalone Emergency LTE Network-in-a-Box.” Project Leader/PI, 130K USD.	2018
University of Washington Postdoctoral Research Grant: “Can You (Securely) Connect Me Now?” PI, 10K USD.	2017
UC President’s Dissertation-Year Fellowship: “Improving the Internet Architecture Through Indirection and Virtualization,” PI, 45K USD.	2016
U.S. Naval Air Systems Command SBIR N10A-T006: “Novel Approaches To Service Virtualization in Mobile Ad-Hoc Networks,” Co-PI, 750K USD.	2014

Honors and Awards

NSA Mathematics and Computer Science Student Scholarship Finalist	2015
Best Student Paper at ICNP 2015: “Design and Benefits of a Hidden-Identifier Architecture”	2015
Best Paper Finalist/Best OMM Presentation at IFIP Networking 2013: “FERN: A Unifying Framework For Name Resolution Across Heterogeneous Architectures”	2013
Highest Honors Graduate (Summa cum Laude), UC Davis	2010
Departmental Commendation in Computer Science, UC Davis	2010

Press

“Building a Community LTE Network in Bokondini, Indonesia,” Internet Society Blog, September 2018. <https://www.internetsociety.org/blog/2018/09/building-a-community-lte-network-in-bokondini-indonesia/>

“Building a ‘cell tower in a box’ to connect some of the billions of people lacking Internet access,” GeekWire, June 2018. <https://www.geekwire.com/2018/building-cell-tower-box-connect-billions-people-lacking-internet-access/>

“A UW Researcher's Big Idea for Expanding Cell Phone Service,” Seattle Magazine, July 2018. <https://www.seattlemag.com/news-and-features/uw-researchers-big-idea-expanding-cell-phone-service>

Conference/Journal Publications

S. Sevilla, P. Kosakanchit, M. Johnson, K. Heimerl. “Building Community LTE Networks With CoLTE.” *UN IGF DC3 2018, Paris*.

M. Johnson, **S. Sevilla**, E. Jang, K. Heimerl. “dLTE: Building a more WiFi-like Cellular Network (Instead of the Other Way Around).” *IEEE HotNets 2018, Bellevue*.

J.J. Garcia-Luna-Aceves, **S. Sevilla**. “A Simple Solution to Scale-Free Internet Host Mobility.” *IEEE ICCCN 2017, Vancouver*. **Invited Paper!**

S. Sevilla, J.J. Garcia-Luna-Aceves. “A Deployable Identifier-Locator Split Architecture.” *IFIP Networking 2017, Stockholm*.

S. Sevilla, J.J. Garcia-Luna-Aceves, Hamid Sadjadpour. “GroupSec: A New Security Model For The Web.” *IEEE ICC 2017, Paris*.

S. Sevilla. “Design and Benefits of a Hidden-Identifier Network Architecture.” *ICNP PhD Forum 2015, San Francisco*. **Best Paper!**

S. Sevilla, J.J. Garcia-Luna-Aceves. “Freeing the IP Internet Architecture From Fixed IP Addresses.” *ICNP 2015, San Francisco*.

S. Sevilla, P. Mahadevan, J.J. Garcia-Luna-Aceves. “FERN: A Unifying Framework For Name-Resolution Across Heterogeneous Architectures.” *Elsevier Journal of Computer Communications*, Vol. 56, 2015.

P. Mahadevan, E. Uzun, **S. Sevilla**, J.J. Garcia-Luna-Aceves. “CCN-KRS: A Key Resolution System for CCN.” *ICN 2014, Paris*.

S. Sevilla, J.J. Garcia-Luna-Aceves. “HIDRA: Hiding Mobility, Multiplexing, and Multi-Homing from Internet Applications.” *IEEE INFOCOM 2014 Global Internet Symposium, Toronto*.

S. Sevilla, P. Mahadevan, J.J. Garcia-Luna-Aceves. “iDNS: Enabling Information Centric Networking Through The DNS.” *IEEE INFOCOM 2014 Workshop on Name-Oriented Mobility, Toronto*.

S. Sevilla, J.J. Garcia-Luna-Aceves. “Allowing Applications To Evolve With The Internet: The Case For Internet Resource Descriptors.” *IEEE ICC 2014, Sydney*.

S. Sevilla, P. Mahadevan, J.J. Garcia-Luna-Aceves. “FERN: A Unifying Framework For Name Resolution Across Heterogeneous Architectures.” *IFIP Networking 2013, Brooklyn*. **Best Paper Finalist!**

S. Sevilla, M. Xia, C. Martel, B. Mukherjee. “Time-Differentiated Resilience in Telecom Mesh Networks.” *IEEE ICC 2011, Kyoto*.

M. Xia, M. Tornatore, **S. Sevilla**, L. Shi, C. Martel, B. Mukherjee. "A Novel SLA Framework for Time-Differentiated Resilience in Optical Mesh Networks." *IEEE Journal of Optical Communications and Networking*, Vol. 3, Issue 4, 2011.

Patents

S. Sevilla, J.J. Garcia-Luna-Aceves. "Method For Enabling Virtual Communication Isolation in a Hidden-Identifier Network Architecture." *U.S. Patent Pending*.

S. Sevilla, J.J. Garcia-Luna-Aceves. "Method for Supporting Multiple Networking Architectures and Environments Through Redirection." *U.S. Patent Pending*.

S. Sevilla, J.J. Garcia-Luna-Aceves. "Method for Supporting Legacy Applications Based on Open Identifiers in an Internetwork Architecture Based on Hidden Identifiers." *U.S. Patent Pending*.

S. Sevilla, J.J. Garcia-Luna-Aceves. "Method for Network Applications to Bind Semantic Meanings to Hidden Identifiers." *U.S. Patent Pending*.

S. Sevilla, J.J. Garcia-Luna-Aceves. "Method for Internetworking Using Hidden Identifiers." *U.S. Patent Pending*.

P. Mahadevan, E. Uzun, **S. Sevilla**, J.J. Garcia-Luna-Aceves. "System and Method for Performing Key Resolution over a Content Centric Network." *U.S. Patent 20160050068*.

S. Sevilla, J.J. Garcia-Luna-Aceves. "Hidden Identifiers for Demultiplexing and Resolution Architecture." *U.S. Patent 20150304363*.

S. Sevilla, P. Mahadevan, J.J. Garcia-Luna-Aceves. "Content Name Resolution for Information Centric Networking." *U.S. Patent 20150248455*.

S. Sevilla, P. Mahadevan, J.J. Garcia-Luna-Aceves. "Method and System for Name Resolution Across Heterogeneous Architectures." *U.S. Patent 20140344474*.

Talks

- “Building Community LTE Networks with CoLTE” *IETF 102, July 2018*
- “A Simple Solution to Scale-Free Internet Host Mobility” *IEEE ICCCN, July 2017*
- “Evolvably Splitting Identifiers from Locators” *HIIT Tech Talk, June 2017*
- “A Deployable Identifier-Locator Split Architecture” *IFIP Networking, June 2017*
- “GroupSec: A New Security Model For The Web” *IEEE ICC, May 2017*
- “Design and Benefits of a Hidden-Identifier Network Architecture” *IEEE ICNP, November 2015.*
- “Freeing the IP Internet Architecture from Fixed IP Addresses” *IEEE ICNP, November 2015.*
- “Allowing Applications to Evolve With the Internet” *IEEE ICC, June 2014*
- “iDNS: Enabling Information-Centric Networking Through The DNS” *IEEE INFOCOM Workshop on Name-Oriented Mobility, April 2014.*
- “HIDRA: Hiding Mobility, Multiplexing, and Multihoming from Internet Applications” *IEEE INFOCOM Global Internet Symposium, April 2014.*
- “APDV: Efficient Content Routing in MANETs Using Distances to Directories” *IEEE INFOCOM Workshop on Name-Oriented Mobility, April 2014.*
- “icDNS: An Information-Centric DNS” *PARC Research Review, March 2014.*
- “FERN: A Unifying Framework For Name Resolution” *IFIP Networking, May 2013.*
- “A Survey of Information-Centric Network Architectures” *UCSC Lecture, February 2013.*
- “Distributed, Scalable Service Discovery” *PARC, August 2012, and UCSC, October 2012.*
- “A Socket API For Multiple Routing Protocols” *UCSC, June 2012.*
- “Time-Differentiated Resilience in Telecom Mesh Networks,” *IEEE ICC, June 2011.*

Student Mentorship

Undergraduate Research Mentor: Jenny Ting Liang, 2018-Present

Undergraduate Research Mentor: Pathirat Kosakanchit, 2018-Present

Undergraduate Research Mentor: Brandon Luu, 2015-2017

Student project design mentor for Advanced Computer Networks: Ethan Papp, Jeff Bertalotto, Robin Schreiber, Jisheng Yang, Fall 2013.

Student project design mentor for Advanced Computer Networks: “Integrating Name-Resolution With MNET Protocols,” Michael Sevilla, Kevin Abas, Lu Liu, Fall 2012.

Teaching Experience

CMPE 1461, Intro. to Computer Networking: Fill-In Instructor, Fall 2018.

CMPS 107, Open Source Programming: Guest Lecturer, Winter 2016, Winter 2017

CMPE 150, Intro. to Computer Networks: Lab Instructor/Teaching Assistant, Fall 2015.

Academic Service

Reviewer for NSF CRII, 2017

Reviewer for IEEE/ACM Transactions on Networking, 2016

Reviewer for ACM ICN, 2014

UCSC Guest-Speaker/Panelist on Graduate Student Researcher positions, 2013