Dr. Spencer Sevilla

Postdoctoral Researcher, University of Washington
email: spencer.builds.networks@gmail.com

Research Interests

Community Networks, LTE, Rural Infrastructure, Routing, Web and Internet Architecture

Positions Held

Postdoctoral Researcher: University of Washington   Seattle, WA, September 2017-Present
P.I./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 the HIDRA system for network indirection, mobility, and service virtualization in mobile ad-hoc networks (MANETs) as well as information-centric networks (ICNs)

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

Software Engineer: Apple, Inc.   Cupertino, CA, 2010-2012
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

Funding

NSF NNA Small: "Exploring The Benefits and Challenges of Community-Powered Connectivity In The New Arctic," Co-PI, 250K USD	2020
Collaboration Gift from LGS Communications for CoLTE-IMS integration, 50K USD	2019
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

Non-Funded 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

Selected 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

Field Certifications

Wilderness First Aid Certification: Received September 2017, expires September 2021
Private Pilot License (ASEL): Received June 13, 2018
Ham Radio License (Technician Level): Callsign KJ7IZS, received September 2019
Languages: Spanish (conversational)

Publications

S. Sevilla. "Embracing The Slower Side of Life." Mountaineer Magazine, Vol. 114, No. 3 (June 2020).

S. Sevilla, M. Johnson, P. Kosakanchit, J. Liang, K. Heimerl. "Demo: An All-In-One Community LTE Network." *ACM MobiCom 2019, Los Cabos, Mexico*.

S. Sevilla, M. Johnson, P. Kosakanchit, J. Liang, K. Heimerl. "Experiences: Design, Implementation, and Deployment of CoLTE, A Community LTE Solution." *ACM MobiCom 2019, Los Cabos, Mexico*.

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.*

Non-Paper Talks

"Productizing and Deploying The OpenAirInterface EPC" *OAI Conference, June 2019*

"Building Community LTE Networks with CoLTE" *IETF 102, July 2018*

"Evolvably Splitting Identifiers from Locators" *HIIT Tech Talk, June 2017*

"Allowing Applications to Evolve With the Internet" *IEEE ICC, June 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.*

"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