

BIOGRAPHICAL SKETCH

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NAME: Baker, Corey

eRA COMMONS USER NAME (credential, e.g., agency login):

POSITION TITLE: Assistant Professor

EDUCATION/TRAINING (*Begin with baccalaureate or other initial professional education, such as nursing, include postdoctoral training and residency training if applicable. Add/delete rows as necessary.*)

INSTITUTION AND LOCATION	DEGREE (if applicable)	END DATE MM/YYYY	FIELD OF STUDY
San Jose State University, San Jose, CA	BS	05/2008	Computer Engineering
California State University Los Angeles, Los Angeles, CA	MS	06/2010	Electrical Engineering
University of Florida, Gainesville, FL	MS	05/2012	Computer Engineering
University of Florida, Electrical and Computer Engineering, Gainesville, FL	PHD	08/2015	Computer Engineering
University of California San Diego, La Jolla, CA	Postdoctoral Fellow	12/2017	

A. Personal Statement

I direct the Network Reconnaissance Lab which investigates full stack systems for distributing, protecting, and authenticating data in opportunistic networking scenarios for remote patient monitoring, smart cities, and natural disasters to improve the livelihood of people. I evaluate real-world applications of opportunistic delay tolerant networks (DTNs) and human centered computing to empower device-to-device (D2D) social networks for crowd sourcing information. Leveraging opportunistic communication provides complementary solutions to traditional networks which are typically dependent upon centralized infrastructures such as the Internet. The goal of my research is to make data accessible in the midst of intermittent and poor connectivity while minimizing delay.

1. Max-Onakpoya E, Madamori O, Grant F, Vanderpool R, Chih M, Ahern D, Aronoll-Spencer E, Baker C. Augmenting Cloud Connectivity with Opportunistic Networks for Rural Remote Patient Monitoring. 2020 International Conference on Computing, Networking and Communications (ICNC). 2020 International Conference on Computing, Networking and Communications (ICNC); ; Big Island, HI, USA. IEEE; c2020. Available from: <https://ieeexplore.ieee.org/document/9049733/> DOI: 10.1109/ICNC47757.2020.9049733
2. Baker C, Starke A, Hill-Jarrett T, McNair J. In Vivo Evaluation of the Secure Opportunistic Schemes Middleware Using a Delay Tolerant Social Network. 2017 IEEE 37th International Conference on Distributed Computing Systems (ICDCS). 2017 IEEE 37th International Conference on Distributed Computing Systems (ICDCS); ; Atlanta, GA, USA. IEEE; c2017. Available from: <http://ieeexplore.ieee.org/document/7980226/> DOI: 10.1109/ICDCS.2017.258

B. Positions, Scientific Appointments and Honors**Positions and Scientific Appointments**

2024 - Assistant Professor, University Of Southern California, Los Angeles, CA

2018 - 2023 Assistant Professor, University of Kentucky, Computer Science, Lexington, KY

2017 - 2017 Visiting Scholar, University of Southern California, Electrical Engineering, Los Angeles, CA

Honors

2019 UK Inclusive Excellence Award, University of Kentucky
2015 The William R. Jones Most Valuable Mentor Award, Florida Education Fund McKnight Program
2015 Presidents Postdoctoral Fellowship, University of California Presidents Office
2014 Florida Education Fund McKnight Dissertation Fellow, Florida Education Fund McKnight Program
2010 Intel Scholar, The Intel Corporation
2010 The National GEM Consortium Ph.D Fellowship, The National GEM Consortium

C. Contribution to Science

1. My contributions directly addressed routing in mobile ad hoc networks (MANETs) and DTNs for D2D communication. These publications document the issues with real-world deployment of MANETs and DTNs and introduces frameworks for real-world evaluation. My contributions in this area were conducted during my doctoral and post-doctoral studies and are currently the center-piece of the research I conduct today.
 - a. Baker Corey, Almodovar-faria Jose, Mcnair Janise. Ad-hoc social network (AHSN) system, AHSN-enabled device, and methods of use. 2020 June.
 - b. St Juste P, Jeong K, Eom H, Baker C, Figueiredo R. TinCan: User-Defined P2P Virtual Network Overlays for Ad-hoc Collaboration. EAI Endorsed Transactions on Collaborative Computing. 2014 October 15; 1(2):e4-. Available from: <http://eudl.eu/doi/10.4108/cc.1.2.e4> DOI: 10.4108/cc.1.2.e4
 - c. Baker C, Almodovar-Faria J, Juste P, McNair J. Low Energy Socially Cognizant Routing for Delay Tolerant Mobile Networks. MILCOM 2013 - 2013 IEEE Military Communications Conference. MILCOM 2013 - 2013 IEEE Military Communications Conference; ; San Diego, CA, USA. IEEE; c2013. Available from: <http://ieeexplore.ieee.org/document/6735639/> DOI: 10.1109/MILCOM.2013.59
 - d. Juste P, Eom H, Woodruff B, Baker C, Figueiredo R. Enabling decentralised microblogging through P2PVPNs. International Journal of Security and Networks. 2013; 8(3):169-. Available from: <http://www.inderscience.com/link.php?id=57699> DOI: 10.1504/IJSN.2013.057699
2. Remote patient monitoring in rural areas require mobile applications that interact with patients and clinicians, understanding and maximizing node density to disseminate information, and supplementing Internet connectivity when needed. My contributions in this area an essential category of the research I conduct today.
 - a. Donawa A, Powell C, Wang R, Chih M, Aronoff-Spencer E, Baker C. Note: Assessing Cancer Patient Usability of a Mobile Distress Screening App. ACM SIGCAS/SIGCHI Conference on Computing and Sustainable Societies (COMPASS). COMPASS '22: ACM SIGCAS/SIGCHI Conference on Computing and Sustainable Societies; 29 0 22; Seattle WA USA. New York, NY, USA: ACM; c2022. Available from: <https://dl.acm.org/doi/10.1145/3530190.3534833> DOI: 10.1145/3530190.3534833
 - b. Aronoff-Spencer E, McComsey M, Chih M, Hubenko A, Baker C, Kim J, Ahern D, Gibbons M, Cafazzo J, Nyakairu P, Vanderpool R, Mullett T, Hesse B. Designing a Framework for Remote Cancer Care Through Community Co-design: Participatory Development Study. Journal of Medical Internet Research. 2022; 24(4):e29492-. Available from: <https://www.jmir.org/2022/4/e29492> DOI: 10.2196/29492

- c. Hesse, Bradford W., Ahern, David, Ellison, Michele, Aronoff-Spencer, Eliah, Vanderpool, Robin C, Onyeije, Karen, Gibbons, Michael C., Mullett, Timothy W., Chih, Ming-Yuan, Attencio, Victoria, Patterson, Grant, Boten, Jessica, Hartshorn, Christopher, Bartolome, Ben, Gorscak, Katie, McComsey, Melanie, Hubenko, Alexandra, Huang, Bin, Baker, Corey, Norman, Don. Barn-Raising on the Digital Frontier: The L.A.U.N.C.H. Collaborative. 2020. Available from: <https://uknowledge.uky.edu/jah/vol2/iss1/2> source-work-id: BASE:1e3ff9bee030e55fb255e8644dd0fe8b3b1ba9110521b77bf8fbf35492c8d511
 - d. Donawa A, Orukari I, Baker C. Scaling Blockchains to Support Electronic Health Records for Hospital Systems. 2019 IEEE 10th Annual Ubiquitous Computing, Electronics & Mobile Communication Conference (UEMCON). 2019 IEEE 10th Annual Ubiquitous Computing, Electronics & Mobile Communication Conference (UEMCON); ; New York City, NY, USA. IEEE; c2019. Available from: <https://ieeexplore.ieee.org/document/8993101/> DOI: 10.1109/UEMCON47517.2019.8993101
3. Research in DTNs and opportunistic communication has been conducted for almost for almost 20 years, yet real-world evaluations and deployments are inadequate or limited to simulation environments. Simulations tend to lead to unexpected real-world performance due to the complexity of characterizing node discovery, mobility, message delivery, and power consumption. This research enables real-world smart city deployments and will assist policy makers will making strategic financial communication decisions based on quality of service (QoS) requirements of smart city data instead of depending on cellular infrastructure that may be underutilized.
- a. Max-Onakpoya E, Baker C. Assessing a Synergistic Use of Alternate Broadband Delivery Models in Rural Areas. 2022 IEEE International Conference on Pervasive Computing and Communications Workshops and other Affiliated Events (PerCom Workshops). 2022 IEEE International Conference on Pervasive Computing and Communications Workshops and other Affiliated Events (PerCom Workshops); ; Pisa, Italy. IEEE; c2022. Available from: <https://ieeexplore.ieee.org/document/9767252/> DOI: 10.1109/PerComWorkshops53856.2022.9767252
 - b. Madamori O, Max-Onakpoya E, Erhardt G, Baker C. Enabling Opportunistic Low-cost Smart Cities By Using Tactical Edge Node Placement. 2021 16th Annual Conference on Wireless On-demand Network Systems and Services Conference (WONS). 2021 16th Annual Conference on Wireless On-demand Network Systems and Services Conference (WONS); ; Klosters, Switzerland. IEEE; c2021. Available from: <https://ieeexplore.ieee.org/document/9415579/> DOI: 10.23919/WONS51326.2021.9415579
 - c. Starke A, Nie Z, Hodges M, Baker C, McNair J. Denial of Service Detection & Mitigation Scheme using Responsive Autonomic Virtual Networks (RAvN). MILCOM 2019 - 2019 IEEE Military Communications Conference (MILCOM). MILCOM 2019 - 2019 IEEE Military Communications Conference (MILCOM); ; Norfolk, VA, USA. IEEE; c2019. Available from: <https://ieeexplore.ieee.org/document/9020809/> DOI: 10.1109/MILCOM47813.2019.9020809
 - d. Madamori O, Max-Onakpoya E, Grant C, Baker C. Using Delay Tolerant Networks as a Backbone for Low-Cost Smart Cities. 2019 IEEE International Conference on Smart Computing (SMARTCOMP). 2019 IEEE International Conference on Smart Computing (SMARTCOMP); ; Washington, DC, USA. IEEE; c2019. Available from: <https://ieeexplore.ieee.org/document/8783990/> DOI: 10.1109/SMARTCOMP.2019.00090