

David Ramirez

Postdoctoral Researcher
Princeton University

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RESEARCH INTERESTS

Wireless networks, service provisioning, combinatorial and stochastic optimization, algorithms

EDUCATION

Rice University Houston, Texas

Ph.D. Electrical and Computer Engineering

12.12 – 12.16

- Thesis Title: “Throughput Maximizing and Service Provisioning Strategies for Millimeter Wave Networks”
- Advisor: Dr. Behnaam Aazhang

M.S. Electrical and Computer Engineering

08.10 – 11.12

- Thesis Title: “Optimal Routing and Power Allocation for Networks with Imperfect Full-Duplex Nodes”
- Advisor Dr. Behnaam Aazhang

Instituto Tecnológico y de Estudios Superiores de Monterrey Monterrey, Mexico

B.S. Engineering Physics (with Honors)

05.05 – 12.09

- Minor in Research and Development.
- Telecommunications concentration at INSA Lyon in Lyon, France.

ACADEMIC POSITIONS

Princeton University Princeton, New Jersey

- Postdoctoral Researcher advised by Dr. H. Vincent Poor 10.18 – Present

NYU Wireless - New York University Brooklyn, New York

- Departmental Postdoctoral Research Assistant 02.17 – 09.18

Princeton University Princeton, New Jersey

- Visiting Postdoctoral Researcher 02.17 – 09.18

Rice University Houston, Texas

- Research Assistant 08.10 – 12.16

JOURNAL PUBLICATIONS

- Mustafa A. Kocak, **David Ramirez**, Elza Erkip, and Dennis E. Shasha, “SafePredict: A Meta-Algorithm for Machine Learning That Uses Refusals to Guarantee Correctness,” *Submitted to IEEE Transactions on Pattern Analysis and Machine Intelligence*. Available on arXiv.
- **David Ramirez** and Behnaam Aazhang, “Optimal Wireless Service within Average Delay,” *IEEE Transactions on Wireless Communications*, Vol. 17, August 2018.
- Boqiang Fan, **David Ramirez**, Lei Huang, Yi Wang, and Behnaam Aazhang, “A Cross-Tier Scheduling Scheme for Multi-Tier mmWave Wireless Networks,” *IEEE Transactions on Wireless Communications*, Vol. 17, August 2018.
- **David Ramirez**, Lei Huang, Yi Wang, and Behnaam Aazhang, “On Opportunistic mmWave Networks with Blockage,” *IEEE Journal on Selected Areas in Communications*, Vol. 35, September 2017.

- **David Ramirez** and Behnaam Aazhang, “Optimal Routing and Power Allocation for Wireless Networks with Imperfect Full-Duplex Nodes,” IEEE Transactions on Wireless Communications, Vol. 12, September 2013.

CONFERENCE PUBLICATIONS

- Shahram Shahsavari, **David Ramirez**, and Elza Erkip, “Scheduling and Power Optimization in Full-Duplex Small Cells with Successive Interference Cancellation,” IEEE Asilomar Conference on Signals, Systems and Computers, November 2017.
- Shuqiao Jia, **David Ramirez**, Lei Huang, Yi Wang, and Behnaam Aazhang, “On the Impact of Blockage on the Throughput of Multi-Tier Millimeter-Wave Networks,” IEEE Asilomar Conf. on Signals, Systems and Computers, November 2016. *Obtained 2nd Place for Best Paper Award.*
- **David Ramirez**, Lei Huang, Yi Wang, and Behnaam Aazhang, “Optimal Opportunistic Transmissions over Directional mmWave Channels,” IEEE International Symposium on Personal, Indoor and Mobile Radio Communications (PIMRC), September 2016.
- **David Ramirez** and Behnaam Aazhang, “Service Centric Scheduling with Strict Deadlines,” IEEE Global Communications Conference (Globecom), December 2015.
- **David Ramirez** and Behnaam Aazhang, “Scheduling for Compute and Forward Networks,” IEEE Asilomar Conference on Signals, Systems and Computers, November 2015.
- Robert LiKamWa, **David Ramirez**, and Jason Holloway, “Styrofoam – A Tightly Packed Coding Scheme for Camera-based Visible Light Communication,” ACM Mobicom - Visible Light Communications Workshop, September 2014.
- **David Ramirez** and Behnaam Aazhang, “Optimal Routing and Power Allocation for Networks with Imperfect Full-Duplex Nodes,” IEEE International Conference on Communications, June 2013.

POSTER PRESENTATIONS

- **David Ramirez**, Sundeep Rangan, John-Ross Rizzo, “Computational Offloading via Wireless Networks Can Enable Real-Time Navigation Wearables for the Visually Impaired,” NYU Biomedical and Biosystems Conference, July 2018.
- **David Ramirez**, Robert LiKamWa, and Jason Holloway, “Styrofoam: Protecting Symbol Fidelity in Screen to Camera Communication,” ACM Mobicom Student Research Competition, September 2014.
- **David Ramirez**, Brian Lewis, and Dennis Brewer “Unbiased comparison of Ku vs. Ka for Satellite Communications” Honorable Mention at BP Technofest, July 2013.
- **David Ramirez** and Behnaam Aazhang “Routing Metrics in Full Duplex Multihop Networks” IEEE North American School of Information Theory, June 2012.
- **David Ramirez** and Behnaam Aazhang “Cooperative Communications for Increased Throughput with Low Overhead” IEEE School of Information Theory, May 2011.

INVITED TALKS

- **David Ramirez**, “Millimeter Frequencies and the Future of Wireless Services,” at *Tec de Monterrey* (ITESM), March 2018, Monterrey, Mexico.
- **David Ramirez**, “Resource Allocation in Wireless Networks,” at *NYU Wireless*, October 2015, Brooklyn, New York.
- **David Ramirez**, “mmWave: New Frequency for a New Network,” at *Huawei Research and Development Center*, September 2015, Shanghai, China.

PROFESSIONAL SERVICE AND ASSOCIATIONS

- Served on the TPC for IEEE Globecom Full-Duplex Workshop 2017 and 2018, and on the TPC for the IEEE ICC Full-Duplex Workshop in 2018.
- Served as a Session Chair for IEEE Asilomar 2017 and CISS Princeton 2018.
- Reviewed on multiple occasions for the following journals: IEEE Transactions on Wireless Communications, IEEE Journal on Special Areas of Communications, IEEE Transactions on Communications, Communication Magazine, and IET Communications.
- Reviewed on multiple occasions for the following conferences: IEEE Globecom, IEEE ISIT, IEEE Asilomar Conference, IEEE PIMRC, IEEE ITW, IEEE SPAWC, IEEE ICC, IEEE WCNC, IEEE EuCNC, CISS, IWCIT.
- Member of IEEE (since 2010), IEEE Communication Society, IEEE Information Theory Society, and Association of Computing Machinery (since 2013).

AWARDS & HONORS

Rice GSA Robert Lowry Patten Award	03.16
Rice ECE Distinguished Service Award	03.16
Rice ECE Best Presenter Award	03.16
Screech Best in COMP/CAAM/ELEC Department	10.15
SHPE Rice Recognition Award	03.15
Texas Instruments Fellowship	08.10
Tec de Monterrey Student Leadership Award	12.09

OUTREACH, MENTORING, AND DIVERSITY EFFORTS

Talks

- **David Ramirez**, “De IFI a Princeton en 3 Simples Pasos,” invited talk at *Tec de Monterrey* (ITESM), March 2018, Monterrey, Mexico.
- **David Ramirez**, “Your Next Poster Presentation Will Rock,” talk at *NYU Wireless*, March 2017, Brooklyn, NY.
- **David Ramirez** and CJ Barberan, “What is grad school? Why go to grad school? How to get to grad school?,” invited talk by the SHPE Student Chapter at University of Houston, November 2016, Houston, TX.

- **David Ramirez** and CJ Barberan, “Go to Grad School,” invited talk by the SHPE Student Chapter at Rice University, March 2016, Houston, TX.

Associations

Rice Ambassador Program Graduate Ambassador 03.16 – 12.16

- Appointed by the Dean of Graduate and Postdoctoral Studies to reach out and promote Rice University’s graduate program to potential students. Assisted in Rice University’s Gulf Coast Undergraduate Research Symposium and screened graduate candidates.

Rice Center for Engineering Leadership Graduate Committee Member 03.12 – 12.16

- Logistics coordinator for *Screech*, the first-ever graduate student elevator-pitch competition; collaborated with Development Office to obtain funding for the first three years of the event. Took a supporting role in other Committee events.

Rice University SHPE Student Chapter Graduate Student Member 07.11 – 12.16

- Participated in community outreach events and provided a graduate student outlook to the majority undergraduate student group. Started the unofficial *SHPE Señor* to attract graduate students to participate in SHPE events.

ECE Graduate Mentoring Program, Co-Organizer (1 of 3) 08.11 – 09.15

- Matched mentors with incoming students, co-organized multiple social events throughout academic year to foster interactions, actively participated in recruiting and orientation events, and formalized program structure to secure funding for following years.

Engineering Physics Student Association, President 08.07 – 05.08

- Organized international symposium for over 400 attendees, coordinated international school trip for over 200 students, greatly improved the association’s finances, and the association received a record setting number of awards from Tec de Monterrey.

Volunteering

Pal’s Place 01.15 – 03.16

- Provides respite for parents of teens with disabilities as well as recreation for teenagers.

Sally Ride Festival 10.10 – 10.15

- Promotes interest in STEM careers to elementary and middle school, primarily female, students. Volunteered in several physics and chemistry booths and as a workshop guide.

Museum of Mexican History 01.08– 07.08

- Museum focused on North American pre-Hispanic civilizations, Spanish colonial era, and Mexican history. Tour guide for general visitors, school visits, and international guests.

TEACHING EXPERIENCE

Rice University 08.11 – 05.14

Rice Center for Teaching Excellence, Teaching Certificate

- Obtained by completing teaching workshop series delivered by Rice University professors.

ELEC 241 Fundamentals of Electrical Engineering I, Teaching Assistant

- Held weekly three-hour lecture for over thirty undergraduate students with original presentation of material seen in class the previous week, managed graders, and held office hours.

ELEC 530 Introduction to Random Processes, Grading Assistant

- Graded graduate level course and led weekly review session for graduate students.

ELEC430 Digital Communication Systems, Grading Assistant

- Graded senior level course and led weekly review session for undergraduate students.

Tec de Monterrey

08.07 – 12.09

Physics I, Physics II, and Physics III, Laboratory, Teaching Assistant

- Led weekly laboratory sessions, which included explanation of physical phenomena, for approximately twenty-five students, oversaw lab experiments, and graded reports.

PROFESSIONAL EXPERIENCE

BP plc Houston, Texas

Office of Chief Technology Officer (CTO), Intern

05.14 – 08.14

- Conducted market research on wearable technologies to identify trends and products relevant for O&G industry for senior Technology Directors. Evaluated and established first contact with experts for consideration with Grand Challenge II.

Operation Critical Telecommunications, Intern

06.13 – 08.13

- Analyzed effects of meteorological phenomena on satellite communications with results presented to global Technical Leads. Co-authored first draft of Spectrum Management Engineering Technical Practice.

Rice Graduate Student Housing Houston, Texas

Residence Assistant

05.12 – 12.14

- Assisted in managing a property with over 200 residents, improved roommate agreement procedures, managed on call emergencies including a kitchen fire, and acted as Housing Representative to Rice's Graduate Student Association.

Prolec-General Electric Monterrey, Mexico

Research Department, Intern

07.09 – 12.09

- Developed technological front on Smart Grids to assess future directions for research and development projects.