

Dr. Saeed Abdallah

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Dept. of Electrical Engineering
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Canadian Citizen

Research Interests

Telecommunications and signal processing, with particular interest in the following areas:

- Relay networks.
- Orthogonal-frequency-division multiplexing (OFDM) systems.
- Multiple-input multiple-output (MIMO) and massive MIMO systems
- Channel estimation and prediction.
- Molecular communication systems.
- Adaptive modulation and coding.
- Next-generation Wi-Fi systems.

Work Experience

- Sept. 2014 - present Assistant Professor
Dept. of Electrical and Computer Engineering,
University of Sharjah, Sharjah, UAE.
- Sept. 2013 - Aug. 2014 Postdoctoral Fellow
Dept. of Electrical and Computer Engineering,
Queen's University, Kingston, Ontario, Canada.
Project: *Rate Adaptation for Next-Generation Wi-Fi Access.*
Supported by Ericsson

Education

- Jan. 2008 - Aug. 2013 **Ph.D.** in Electrical Engineering,
McGill University, Montreal, Quebec, Canada
Dissertation: *Spectrally-efficient approaches to channel estimation
for amplify-and-forward two-way relay networks.*
- Sept. 2005 - Dec. 2007 **Ms.** in Electrical Engineering (Thesis)
McGill University, Montreal, Quebec, Canada.
Dissertation: *Widely-linear minimum-variance channel estimation
with application to multicarrier CDMA systems.*
Dean's Honor List.
- Oct. 2001 - June 2005 **Bch.** of Engineering in Computer and Communications
American University of Beirut, Beirut, Lebanon
With Distinction.

Professional Experience

Courses taught (Sept. 2014-present):

- Wireless Communications.
- Telecommunication Systems 1.
- Circuits Analysis 1.
- Signals and Systems.
- Random Signal Theory.
- Random Signals and Systems.
- Telecommunication Systems 1 Lab.
- Circuits Analysis 1 Lab.

Administrative Experience

- EE Dept. Seminar Coordinator (2015-present).
- Faculty Recruitment Committee (Spring 2016).
- EE Dept. Innovation Committee (2017-present).
- EE Graduate Program Accreditation Committee (2018-present).
- EE Senior Design Project Committee (2017-present).
- College of Engineering Disciplinary Committee (2018-2020).
- College of Engineering Distance Learning Committee (2020-present).

Research Assistant (Jan. 2008 - Aug. 2013)

McGill University, Montreal, Canada

Dept. of Electrical Engineering

Research on:

- Spectrally efficient blind and semi-blind channel estimation algorithms for amplify-and-forward relay networks.
- Widely linear filtering techniques, with application to subspace-based channel estimation.

Teaching Assistant

McGill University, Montreal, Canada

Dept. of Electrical Engineering

Courses:

- Digital Signal Processing.
- Wireless Communications (graduate level).
- Probability and Random Signals 2 (graduate level).
- Signals and Systems 1.
- Probability and Random Signals 1.

Professional Activities

Reviewer for Journals:

- IEEE Transactions on Signal Processing.
- IEEE Transactions on Wireless Communications.
- IEEE Transactions on Communications.
- EURASIP Journal on Advances in Signal Processing.
- IEEE Signal Processing Letters.
- IEEE Wireless Communications Letters.
- IEEE Transactions on Vehicular Technology.

Technical Program Committee:

- 27th Queen's Biennial Symposium on Communications (Kingston, Ontario).

Awards

- FQRNT International Internship Fellowship Fall 2012
- Graduate Tuition Fellowship Fall 2005
McGill University.

Funded Projects

- Optimal Resource Management for Cloud-Based Fifth Generation Wireless Networks
- Massive MIMO Transceiver Design
- Advanced Signal Processing and Performance Analysis for Next Generation Wireless Systems

Conference Presentations

1. "Joint Channel and Timing-Offset Estimation in Two-way Relays", *IEEE International Symposium on Signal Processing and Information Technology (ISSPIT)*, Ajman, UAE, Dec. 2019.
2. "Joint Frequency Offset and Channel Estimation for Two-way Relays in the Presence of Timing Offsets", *IEEE International Conference on Communications, Signal Processing, and their Applications (ICCSPA)*, Sharjah, UAE, Mar. 2019.
3. K. A. Alnajjar, S. Abdallah, M. Saad and A. A. ElMoursy, "Low Complexity Receivers for Massive MIMO Cloud Radio Access Systems", *IEEE International Conference on Signal Processing and Information Security (ICSPIS)*, Dubai, UAE, Nov. 2018.
4. "Semi-blind Channel Estimation for Asynchronous Amplify-and Forward Two-way Relay Networks" *IEEE Asia Pacific Wireless Communications Symposium (APWCS)*, Incheon, South Korea, Aug. 2017.

5. “Performance of Low Complexity Receivers for Massive MIMO with Channel Estimation and Correlation”*IEEE International Symposium on Telecommunication Technologies (ISTT)*, Kuala Lumpur, Malaysia, Nov. 2016.
6. “Joint rate adaptation, frame aggregation and MIMO mode selection for IEEE 802.11ac”, *IEEE Wireless Communications and Networking Conference (WCNC)*, Doha, Qatar, Apr. 2016.
7. “Widely linear vs. conventional subspace-based estimation of SIMO flat-fading channels”, *IEEE International Symposium on Personal, Indoor and Mobile Radio Communications (PIMRC)*, Toronto, CA, Sept. 2011.
8. “Semi-blind channel estimation for amplify-and-forward two-way relay networks employing constant-modulus constellations”, *44th Annual Conference on Information Sciences and Systems (CISS)*, Princeton, NJ, Mar. 2010.

Poster Presentations

1. “Rate Adaptation using Long Range Channel Prediction based on Discrete Prolate Spheroidal Sequences”,*in Proc. IEEE International Workshop on Signal Processing Advances in Wireless Communications (SPAWC)*, Toronto, CA, Jun. 2014.
2. “Semi-blind channel estimation for OFDM-based amplify-and-forward two-way relay networks”, *in Proc. IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP)*, Vancouver, CA, May 2013.

Publications

Journal Articles (published)

1. A. A. El-Moursy, S. Abdallah, M. Saad and K. Alnajjar, "Parallel Two-Way Relay Channel Estimation in Cloud-Based 5G Radio Access Networks," in *IEEE Access*, vol. 8, pp. 144077-144091, 2020.
2. Saeed Abdallah and Abdollah M. Darya, "Semi-blind Channel Estimation for Diffusive Molecular Communication", *accepted for publication in IEEE Communications Letters*, Jul. 2020.
3. Saeed Abdallah, Mohamed Saad, Khawla Alnajjar and Mudassir Masood, "Semi-blind Joint Timing-Offset and Channel Estimation for Amplify-and-Forward Two-way Relaying", *IEEE Transactions on Wireless Communications*, vol. 19, no. 4, pp. 2613-2627, April 2020.
4. M. Saad, Saeed Abdallah, "On Millimeter Wave 5G Backhaul Link Scheduling", *IEEE ACCESS*, vol. 7, pp. 76448-76457, Jun. 2019.
5. Saeed Abdallah, Ahmed Salameh, M. Saad, "Spectrum Efficient Joint Frequency Offset and Channel Estimation for Time-Asynchronous Amplify-and Forward Two-way Relay Networks", *IEEE ACCESS*, vol. 7, pp. 71972-71985, May 2019.
6. Saeed Abdallah, "Spectrally Efficient Channel Estimation for Asynchronous Amplify-and Forward Two-way Relay Networks", *IEEE Transactions on Wireless Communications*, vol. 16, no. 11, pp. 7333-7347, Nov. 2017.
7. S. Abdallah and Ioannis N. Psaromiligkos, "Exact Cramer-Rao bounds for semi-blind channel estimation in amplify-and-forward two-way relay networks employing square QAM modulation", *IEEE Transactions on Wireless Communications*, vol. 13, no. 12, pp. 6955 - 6967, Dec. 2014.
8. Saeed Abdallah and Ioannis N. Psaromiligkos, "Semi-blind channel estimation with superimposed training for OFDM-based AF two-way relaying", *IEEE Transactions on Wireless Communications*, vol. 13, no. 5, pp. 2468 - 2477, May 2014.
9. Saeed Abdallah and Ioannis N. Psaromiligkos, "EM-based Semi-blind Channel Estimation in Amplify-and-Forward Two-Way Relay Networks", *IEEE Wireless Communications Letters*, vol. 2, no. 5, pp. 527 - 530, Oct. 2013.
10. Saeed Abdallah and Ioannis N. Psaromiligkos, "Partially-blind estimation of reciprocal channels for AF two-way relay networks employing M -PSK modulation", *IEEE Transactions on Wireless Communications*, vol. 11, no. 5, pp. 1649 - 1654, May. 2012.
11. Saeed Abdallah and Ioannis N. Psaromiligkos, "Widely linear versus conventional subspace-based estimation of SIMO flat-fading channels: Mean-squared error analysis", *IEEE Transactions on Signal Processing*, vol. 60, no. 3, pp. 1307 - 1318, Mar. 2012.
12. Saeed Abdallah and Ioannis N. Psaromiligkos, "Blind channel estimation for amplify-and-forward two-way relay networks employing M -PSK modulation", *IEEE Transactions on Signal Processing*, vol. 60, no. 7, pp. 3604 - 3615, Jul. 2012.

Peer-Reviewed Conference Papers

1. Saeed Abdallah, Mohamed Saad and Khawla Alnajjar “Joint Channel and Timing-Offset Estimation in Two-way Relays”, in *Proc. IEEE International Symposium on Signal Processing and Information Technology (ISSPIT)*, Ajman, UAE, Dec. 2019.
2. Mohamed Saad, Ahmed I. Salameh and Saeed Abdallah “Energy-Efficient Shortest Path Planning on Uneven Terrains: A Composite Routing Metric Approach”, in *Proc. IEEE International Symposium on Signal Processing and Information Technology (ISSPIT)*, Ajman, UAE, Dec. 2019.
3. Mohamed Saad and Saeed Abdallah “A Fast Algorithm for Power-Controlled Capacity Maximization in Wireless Networks”, in *Proc. IEEE International Symposium on Signal Processing and Information Technology (ISSPIT)*, Ajman, UAE, Dec. 2019.
4. Ahmed Salameh, Saeed Abdallah, Mohamed Saad, “Joint Frequency Offset and Channel Estimation for Two-way Relays in the Presence of Timing Offsets”, in *Proc. IEEE International Conference on Communications, Signal Processing, and their Applications (ICCSPA)*, Sharjah, UAE, Mar. 2019.
5. Ahmed Salameh, Saeed Abdallah, Mohamed Saad, On the Performance of Two-way Relays in the Presence of Frequency Offsets , in *Proc. IEEE International Conference on Signal Processing and Information Security (ICSPIS)*, Dubai, UAE, Nov. 2018.
6. K. A. Alnajjar, S. Abdallah, M. Saad and A. A. ElMoursy, “Low Complexity Receivers for Massive MIMO Cloud Radio Access Systems” , in *Proc. IEEE International Conference on Signal Processing and Information Security (ICSPIS)*, Dubai, UAE, Nov. 2018.
7. Saeed Abdallah, “Semi-blind Channel Estimation for Asynchronous Amplify-and Forward Two-way Relay Networks”, in *Proc. IEEE Asia Pacific Wireless Communications Symposium (APWCS)*, Incheon, South Korea, Aug. 2017.
8. Khawla Alnajjar and Saeed Abdallah, “Performance of Low Complexity Receivers for Massive MIMO with Channel Estimation and Correlation”, in *Proc. IEEE International Symposium on Telecommunication Technologies (ISTT)*, Kuala Lumpur, Malaysia, Nov. 2016.
9. Saeed Abdallah and Steven Blostein, “Joint rate adaptation, frame aggregation and MIMO mode selection for IEEE 802.11ac”, in *Proc. IEEE Wireless Communications and Networking Conference (WCNC)*, Doha, Qatar, Apr. 2016.
10. Saeed Abdallah and Steven Blostein, “Rate Adaptation using Long Range Channel Prediction based on Discrete Prolate Spheroidal Sequences”, in *Proc. IEEE International Workshop on Signal Processing Advances in Wireless Communications (SPAWC)*, Toronto, CA, Jun. 2014.
11. Saeed Abdallah and Ioannis N. Psaromiligkos, “Semi-blind channel estimation for OFDM-based amplify-and-forward two-way relay networks”, in *Proc. IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP)*, Vancouver, CA, May 2013.
12. Saeed Abdallah and Ioannis N. Psaromiligkos, “Blind channel estimation for MPSK-based amplify-and-forward two-way relaying”, in *Proc. IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP)*, Prague, Czech Republic, May 2011.
13. Saeed Abdallah and Ioannis N. Psaromiligkos, “Widely linear vs. conventional subspace-based

estimation of SIMO flat-fading channels”, in *Proc. IEEE International Symposium on Personal, Indoor and Mobile Radio Communications (PIMRC)*, Toronto, CA, Sept. 2011.

14. Saeed Abdallah and Ioannis N. Psaromiligkos, “Semi-blind channel estimation for amplify-and-forward two-way relay networks employing constant-modulus constellations”, in *Proc. 44th Annual Conference on Information Sciences and Systems (CISS)*, Princeton, NJ, Mar. 2010.

15. Saeed Abdallah and Ioannis N. Psaromiligkos, “Widely linear minimum variance channel estimation for MC-CDMA systems using real modulation”, in *Proc. Canadian Conference on Electrical and Computer Engineering (CCECE)*, Vancouver, CA, Apr. 2007.

Research Profile

Google Scholar: <https://scholar.google.ae/citations?user=n76D9KgAAAAJ&hl=en>

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References

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