Ahmed Samir Zamzam

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RESEARCH INTERESTS

Smart grids control and optimization, large-scale complex energy systems, grid data analytics, and Machine Learning.

EDUCATION

University of Minnesota, Twin Cities, MN

PhD., Electrical and Computer Engineering, Sep. 2015 - June 2019 (expected)
- **Current GPA:** 3.94/4.0
- **Advisor:** Prof. Nikos D. Sidiropoulos
- **Coursework:** Renewable Energy Systems, Nonlinear Optimization, Advanced Topics in Signal Processing, Optimization Theory, Machine Learning, Probability and Random Processes, Advanced Algorithms and Data Structures, Mathematical Analysis (I & II), and Computational Aspects of Matrix Theory,

Nile University, Giza, Egypt

M.S., Wireless Technologies, Aug. 2015
- **GPA:** 3.97/4.0
- **Thesis Topic:** *Degrees of Freedom in Wireless Relaying Networks*
- **Advisors:** Prof. Amr ElKeie and Prof. Mohamed Nafie
- **Coursework:** Stochastic Processes, Queuing Theory, Information Theory, Digital Communications, Convex Optimization, Estimation and Detection, Advanced Network, Innovation Management, and Wireless Communications.

Cairo University, Cairo, Egypt

B.S. with Honors, Electronics and Electrical Communications Engineering, May 2013
- **Cumulative GPA:** 83.35 %
- **Graduation Project:** *Design and Implementation of OFDM Digital Mobile Radio on USRP E100*
- **Advisors:** Prof. Magdi Fikri and Prof. Hossam A. Fahmy

PROFESSIONAL EXPERIENCE

Research Assistant — Sep. 2015 to present
Signal and Tensor Analytics Research Group, University of Minnesota
- **Supervisor:** Prof. Nikos D. Sidiropoulos.

Research Intern — May 2017 to Aug. 2017
Power System Engineering Center, National Renewable Energy Laboratory (*NREL*)
- **Project:** *"Optimization of multi-energy systems"*.
- **Supervisor:** Dr. Emiliano DallAnese.

Research Assistant — Oct. 2013 to Aug. 2015
Wireless Intelligent Networks Center, Nile University
- **Project:** *"Interference Management in Relay-Assisted Wireless Communications Networks,"* Funded by National Priorities Research Program of Qatar.
- **Supervisors:** Prof. Mohammed Nafie, Prof. Amr ElKeie and Prof. Yahia Mohasseb

Software Developer Intern — June 2013 to Sep 2013
Engineering Office of Integrated Projects (EOIP)
Developing and modifying software solutions for computers and smart mobiles.

JOURNAL	
PUBLICATIONS	

1. **A. S. Zamzam**, X. Fu, and N. D. Sidiropoulos, "Data-Driven Learning-Based Optimization for Distribution System State Estimation". (Submitted)

2. **A. S. Zamzam**, E. Dall'Anese, C. Zhao, J. A. Taylor, and N. D. Sidiropoulos, "Optimal Water-Power Flow Problem: Formulation and Distributed Optimal Solution," *IEEE Trans. Control Netw. Syst.* (Accepted)

3. G. Wang, **A. S. Zamzam**, G. B. Giannakis, and N. D. Sidiropoulos, "Power System State Estimation via Feasible Point Pursuit: Algorithms and Cramer-Rao Bound," *IEEE Trans. Signal Process.* (Accepted)

4. **A. S. Zamzam**, N. D. Sidiropoulos, and E. Dall'Anese "Beyond Relaxation and Newton-Raphson: Solving AC OPF for Multi-phase Systems with Renewables" *IEEE Trans. Smart Grid.* (Accepted)

5. **A. S. Zamzam**, A. El-Keyi, M. Nafie, and Y. Mohasseb "On the degrees of freedom of the two-cell two-hop MIMO network with dedicated and shared relays" *IEEE Trans. Wireless Commun., vol. 14, no. 12, pp. 6738 - 6751, July 2015.*

CONFERENCE
PUBLICATIONS

1. **A. S. Zamzam**, E. Dall'Anese, and N. D. Sidiropoulos, "A Dantzig-Wolfe Decomposition Based Approach for Distributed Storage Management," in *P*roc. of IEEE Conference on Decision and Control, Miami, FL, Dec. 2018.

2. V. N. Ioannidis, **A. S. Zamzam**, G. B. Giannakis and N. D. Sidiropoulos, "Coupled Graph Tensor Factorization with Misses," in *Proc. of Globalsip, Anaheim, CA, Nov. 2018.*

3. M. Ibrahim, **A. S. Zamzam**, X. Fu, and N. D. Sidiropoulos, "Learning-based Antenna Selection," in *P*roc. of SPAWC, Kalamata, Greece, June 2018.

4. B. Yang, **A. S. Zamzam**, and N. D. Sidiropoulos, "ParaSketch: Parallel Tensor Factorization via Sketching," in *P*roc. SIAM Conf. on Data Mining, San Diego, CA, May 2018. (acceptance rate: 23.2 %)

5. **A. S. Zamzam**, X. Fu, E. Dall'Anese, and N. D. Sidiropoulos, "Distributed Feasible Point Pursuit for Optimal power Flow Problems," in *P*roc. IEEE International Workshop on Computational Advances in Multi-Sensor Adaptive Processing, Curacao, Dutch Antilles, Dec. 2017.

6. A. Konar, **A. S. Zamzam**, and N. D. Sidiropoulos, "Decentralized Power System State Estimation via Non-convex Multi-agent Optimization," in *P*roc. Globalsip Conf., Montreal, QC, Nov. 2017.

7. **A. S. Zamzam**, C. Zhao, E. Dall'Anese, and N. D. Sidiropoulos, "A QCQP Approach for OPF in Multiphase Radial Networks with Wye and Delta Connections," in *P*roc. IREP Bulk Power Systems Dynamics and Control Symposium, Espinho, Portugal, Aug. 2017.

8. G. Wang, **A. S. Zamzam**, G. B. Giannakis, and N. D. Sidiropoulos, "Power System State Estimation via Feasible Point Pursuit," in *Proc. Globalsip Conf., Washington, DC, Dec. 2016.*

9. **A. S. Zamzam**, V. N. Ioannidis, and N. D. Sidiropoulos, "Coupled Graph Tensor Factorization," in *Proc. of Asilomar Conf., Pacific Grove, CA, Nov. 2016.*

10. **A. S. Zamzam**, A. El-Keyi, M. Nafie, and Y. Mohasseb "Degrees of Freedom for a two-cell relay network with soft handoffs," in *Proc. Globecom Conf. Austin, TX, Dec. 2014.*

AWARDS	• Doctoral Dissertation Fellowship 2018/2019, University of Minnesota. • Louis John Schnell Fellowship, ECE Department, University of Minnesota. • UMN Council of Graduate Students Travel Grants, 2016 and 2018. ($2100). • IEEE Signal Processing Society Student Travel Grant, 2017. ($1250). • IEEE Power and Energy Society Student Travel Grant, 2018. • Ranked 3rd in Saudi National Mathematics Olympiad (1,000+ candidates), 2008.

GRANT
EXPERIENCE

Drafted "Decentralized and Stochastic Algorithms for State Estimation and Flow Optimization in Power Systems," proposal submitted to NSF CPS program, 2017.
Drafted "Decentralized and Stochastic Algorithms for State Estimation and Flow Optimization in Power Systems," proposal submitted to NSF CPS program, 2017.

SERVICE

Reviewer

- IEEE Transactions on Smart Grid
- IEEE Transactions on Power Systems
- IEEE Transactions on Vehicular Technology
- IEEE Wireless Communications Letters
- IEEE Transactions on Selected Topics in Signal Processing
- IEEE Control Systems Letters
- IEEE Power Engineering Letters

Member of the Council of Graduate Students grants committee (2017-2018)

SOFTWARE SKILLS

Programming Languages:
MATLAB, Python, C, C++, Mathematica, and UNIX shell scripting.
Optimization Software:
GLPK, CPLEX, MOSEK, and IPOPT.
Simulation Tools:
MATPOWER, Simulink, and NS-3.

REFERENCES

Nikos D. Sidiropoulos
Professor   Phone: +1-612-625-1242
ECE Department Chair   E-mail: nikos@virginia.edu
University of Virginia

Georgios B. Giannakis
Professor, McKnight Presidential Chair in ECE   Phone: +1-612-625-4287
Director of the Digital Technology Center   E-mail: georgios@umn.edu
University of Minnesota

Emiliano DallAnese
Assistant Professor   Phone: +1-612-702-2073
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University of Colorado Boulder

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Nile University