Chaouki Ben Issaid
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💼 EXPERIENCE

- **University of Oulu** — Oulu, Finland
  Postdoctoral Fellow — *Jan 2020 - Now*
    - ○ **Research Interest**: Communication-efficient distributed machine learning (Group head: Prof. Mehdi Bennis).

- **Centre Tecnològic de Telecomunicacions de Catalunya (CTTC)** — Barcelona, Spain
  Visiting Researcher — *July 2019*
    - ○ **Research Topic**: Data-driven approach to group users in a Non-Orthogonal Multiple Access (NOMA) MIMO by coupling a Classifier Chain with a Gradient Boosting Decision Tree, namely, the LightGBM algorithm.

- **King Abdullah University of Science and Technology** — Thuwal, KSA
  Teaching Assistant — *Aug 2017 - December 2018*
    - ○ **Probability and Random Processes**: Preparing/grading homeworks, quizzes and exams and giving tutorials.

- **King Abdullah University of Science and Technology** — Thuwal, KSA
  Graduation Project — *Feb - June 2013*
    - ○ **Uncertainty Quantification in European Options**: Quantifying the effect of uncertainty in the volatility of the market on the price of European options as well as the Delta hedging strategy.

🏛 EDUCATION

- **King Abdullah University of Science and Technology** — Thuwal, KSA
  Ph.D in Statistics — *Aug. 2015 – Dec. 2019*
    - ○ **Thesis**: Proposing efficient importance sampling estimators for the accurate performance analysis of wireless communication systems.
    - ○ **Advisor**: Prof. Mohamed-Slim Alouini.
    - ○ **Relevant Coursework**: Computational Multivariate Statistics, Stochastic Methods in Engineering, Machine Learning, Linear Models.

- **King Abdullah University of Science and Technology** — Thuwal, KSA
  Master of Science in Applied Mathematics and Computational Science — *Aug. 2013 – May 2015*
    - ○ **Thesis**: Implementing the Multilevel Monte Carlo (MLMC) method to accelerate the computation of the expected information gain in the context of Bayesian experimental design.
    - ○ **Advisor**: Prof. Raul Tempone.
    - ○ **Relevant Coursework**: Numerical Linear Algebra, Numerical Optimization, Numerical Methods for SDEs.

- **Ecole Polytechnique de Tunisie** — La Marsa, Tunisia
  Diplôme d'Ingénieur — *Sep. 2010 – June 2013*
    - ○ **Relevant Coursework**: Econometrics, Operations research, Data Analysis, Databases.
    - ○ **Rank**: 1/50.

📖 PUBLICATIONS

- Journals:

    J8) A. Elgabli, J. Park, A. S. Bedi, **C. Ben Issaid**, M. Bennis, and V. Aggarwal, "Q-GADMM: Quantized Group ADMM for Communication Efficient Decentralized Machine Learning," in IEEE Transactions on Communications, Sep. 2020.

    J7) A. Trichili, **C. Ben Issaid**, B. S. Ooi, and M.-S. Alouini, "A CNN Based Structured Light Communication Scheme for Internet of Underwater Things Applications," in IEEE Internet of Things Journal, 2020.

    J6) **C. Ben Issaid** and M.-S. Alouini, "Level Crossing Rate and Average Outage Duration of Free Space Optical Links," in IEEE Transactions on Communications, vol. 67, no. 9, pp. 6234-6242, June 2019.

J5) **C. Ben Issaid**, M.-S. Alouini and R. Tempone, "Efficient Monte Carlo Simulation of the Left Tail of Positive Gaussian Quadratic Forms", arXiv:1901.09174.

J4) **C. Ben Issaid**, M.-S. Alouini and R. Tempone, "On the Fast and Precise Evaluation of the Outage Probability of Diversity Receivers Over $\alpha - \mu$, $\kappa - \mu$, and $\eta - \mu$ Fading Channels," in IEEE Transactions on Wireless Communications, vol. 17, no. 2, pp. 1255-1268, Feb. 2018.

J3) **C. Ben Issaid**, M.-S. Alouini and R. Tempone, "Efficient Simulation of the Outage Probability of Multihop Systems," in IEEE Photonics Journal, vol. 9, no. 6, pp. 1-8, Dec. 2017.

J2) **C. Ben Issaid**, K. Park and M. Alouini, "A Generic Simulation Approach for the Fast and Accurate Estimation of the Outage Probability of Single Hop and Multihop FSO Links Subject to Generalized Pointing Errors," in IEEE Transactions on Wireless Communications, vol. 16, no. 10, pp. 6822-6837, Oct. 2017.

J1) **C. Ben Issaid**, N. Ben Rached, A. Kammoun, M.-S. Alouini and R. Tempone, "On the Efficient Simulation of the Distribution of the Sum of Gamma–Gamma Variates With Application to the Outage Probability Evaluation Over Fading Channels," in IEEE Transactions on Communications, vol. 65, no. 4, pp. 1839-1848, April 2017.

- Conferences:

C4) A. Trichili, **C. Ben Issaid**, Y. Guo, T. K. Ng, Boon S. Ooi, M.-S. Alouini, "Detecting Underwater Laguerre Gaussian Modes using a Convolutional Neural Network", Accepted at 2019 Advanced Photonics Congress.

C3) **C. Ben Issaid**, M.-S. Alouini and R. Tempone, "Efficient outage probability evaluation of diversity receivers over $\alpha - \mu$ fading channels," 2018 IEEE Wireless Communications and Networking Conference (WCNC), Barcelona, 2018, pp. 1-6.

C2) **C. Ben Issaid**, N. Ben Rached, A. Kammoun, M.-S. Alouini and R. Tempone, "On the sum of Gamma-Gamma variates with application to the fast outage probability evaluation over fading channels," 2016 IEEE Global Conference on Signal and Information Processing (GlobalSIP), Washington, DC, 2016, pp. 25-29.

C1) **C. Ben Issaid**, K. Park, M.-S. Alouini and R. Tempone, "Fast Outage Probability Simulation for FSO Links with a Generalized Pointing Error Model," 2016 IEEE Global Communications Conference (GLOBECOM), Washington DC, 2016, pp. 1-7.

Honors and Awards

- **IEEE Globecom Student Travel Award**   USA
  IEEE   *2016*

- **KAUST Fellowship**   KSA
  King Abdullah University of Science and Technology   *2013*

- **EPT Scholarship**   Tunisia
  Ecole Polytechnique de Tunisie   *2010*

Computer skills and Languages

- **Computer Skills**: Python, SQL, Matlab, Command Line, Git, Keras, LateX.
- **Languages**: Native Arabic, Bilingual French, Fluent English.

References

- **Mehdi Bennis**   mehdi.bennis@oulu.fi
  Associate Professor   *University of Oulu, Finland*

- **Mohamed-Slim Alouini**   slim.alouini@kaust.edu.sa
  Professor and Associate Dean of CEMSE division   *KAUST, KSA*

- **Carles Antón-Haro**   carles.anton@cttc.es
  Director of R&D Programs, Senior Researcher   *CTTC, Spain*