CURRICULUM VITAE – VERA MILOSLAVSKAYA

PERSONAL INFORMATION

Date and Place of Birth: 14.06.1989, Russia
Visa in Australia: Temporary Skill Shortage (subclass 482); October 2018 – October 2022
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ResearchGate: https://www.researchgate.net/profile/Vera_Miloslavskaya
LinkedIn: https://ru.linkedin.com/in/veramiloslavskaya
Google Scholar: https://scholar.google.com/citations?user=5oFNrPIAAAAJ&hl=en
Publons: https://publons.com/researcher/3121389/vera-miloslavskaya/

EDUCATION

10/2012-3/2015 — **Peter the Great Saint Petersburg State Polytechnic University (Saint Petersburg State Polytechnic University before 2015), Russia**
PhD
(The academic degree Candidate of Technical Sciences)
Thesis: Methods for design and decoding of polar codes

9/2010-6/2012 — **Saint Petersburg State Polytechnic University, Russia**
The Master degree of Computers and Technology majoring in Information technology and computers
(Master's degree in Computer Science)
GPA: 4,8 / 5

10/2006-11/2012 — **Saint Petersburg State Polytechnic University, Russia**
Information Technology Specialist and Economist majoring in Applied Information Science in Economics
(5 years degree)
GPA: 4,6 / 5

9/2006 – 6/2010 — **Saint Petersburg State Polytechnic University, Russia**
The Bachelor degree of Computers and Technology majoring in Information technology and computers
(Bachelor's degree in Computer Science)
GPA: 4,75 / 5

2006 — **School 239, Saint Petersburg, Russia**

WORK EXPERIENCE

11/2018 – **Postdoctoral Research Associate in Telecommunications – The University of Sydney, Australia**
Research in Coding Theory (sub-field of Information Theory). Design of new error-correcting codes for ultra-reliable low latency wireless communications in 5G/6G networks. Reading and writing research papers. Software implementation of the proposed algorithms.

12/2016 – 11/2018 **Research Scientist – Cloud Crowding Corp. Datomia**
Research in the area of distributed cloud storage systems. Writing of patent applications. Designing of error-correction codes for cloud storage.

3/2011 – 6/2016 **Research Fellow – Peter the Great Saint Petersburg State Polytechnic University, Russia**
Research and development in the area of error-correction coding.
Designing of new error-correction codes and efficient decoding techniques for them. Implementation of algorithms in C/C++ (making prototypes of encoders, decoders and error-correcting codes generators).
Participating in research projects for EMC (Dell EMC), Samsung, Huawei.

7/2011 – 8/2011 **Trainee – Intel, Russia**
Participating in a training program and investigating Intel Array Building Blocks in class of financial benchmarks

9/2009 – 11/2009 **Trainee – OpenWay, Russia**
Participating in a training program concerning technical customer support in regards to electronic payment systems

6/2008 – 8/2008 **Trainee – Island Pursuit, New Port, USA**
Customer service and sales of clothing and apparel

TEACHING AND ADVISING EXPERIENCE

As a Postdoctoral Research Associate in Telecommunications at the University of Sydney

- Delivered 5 of 12 lectures on "Error-Control Coding" (unit of study ELEC 5507 at the University of Sydney) in April-May of 2021, as well as 2020
- Supervised Master capstone project students:
  - Vladimir Lapin (Master of Professional Engineering) Dissertation "Design of Outer Codes for Polar Codes in the 5G Standard", March 2020 – November 2020
  - Qing Liu (Master of Professional Engineering) Capstone Project "Low-Complexity Sequential Decoding of Polar Codes", September 2020 – May 2021
- Supervising undergraduate capstone project students:
  - Louis Angelo Policarpio (Bachelor of Engineering Honours in Software Engineering) Capstone project "Interactive visualization of Self-organizing map", September 2021 – May 2022

As a Research Fellow at Peter the Great Saint Petersburg State Polytechnic University

- Taught undergraduate students on discrete mathematics: taught practical classes and delivered lectures
- Supervised two undergraduate thesis students

PROFESSIONAL SERVICE

Reviewer for

- IEEE Transactions on Communications
- IEEE Transactions on Signal Processing
- IEEE Transactions on Information Theory
- IEEE Communications Letters

Details are available at Publons
https://publons.com/researcher/3121389/vera-miloslavskaya

SKILLS

Languages Russian (mother tongue), English

Computer Skills C/C++, MS Visual Studio, Python, Matlab, Java, Go, Maple, LaTeX, Microsoft Office

HONORS AND AWARDS

1. Gold medal of the Russian Academy of Science (2012)
2. St. Petersburg State Polytechnic University young scientist research award (2015)
3. St. Petersburg State Polytechnic University PhD student research award (2012)
4. Saint-Petersburg government research award for students (2010, 2011, 2012, 2013)
5. St. Petersburg State Polytechnic University student research award (2010)
6. Diploma of the 3rd degree for achievements in the 3rd stage of the all-Russian school Olympiad in mathematics (2006)
7. Diploma of the 3rd degree for achievements in open Olympiad of Saint-Petersburg in physics (2004, 2005)

PUBLICATIONS

1. **V. Miloslavskaya**, B. Vucetic, Y. Li, G. Park and O.-S. Park, "Recursive Design of Precoded Polar Codes for SCL Decoding," in IEEE Transactions on Communications, vol. 69, no. 12, pp. 7945-7959, Dec. 2021. [**Q1**, IF 5.69, SJR 1.468, h-index 214]

2. A. Kosasih, **V. Miloslavskaya**, W. Hardjawana, V. Andrean and B. Vucetic, "Improving Cell-Free Massive MIMO Detection Performance via Expectation Propagation," 2021 IEEE 94th Vehicular Technology Conference (VTC2021-Fall), 2021, pp. 1-5.

3. A. Kosasih, **V. Miloslavskaya**, W. Hardjawana, C. She, C. -K. Wen and B. Vucetic, "A Bayesian Receiver with Improved Complexity-Reliability Trade-off in Massive MIMO Systems," in IEEE Transactions on Communications, vol. 69, no. 9, pp. 6251-6266, Sept. 2021. [**Q1**, IF 5.69, SJR 1.468, h-index 214]

4. **V. Miloslavskaya**, B. Vucetic "Design of Short Polar Codes for SCL Decoding" // IEEE Transactions on Communications, vol. 68, pp. 6657-6668, 2020. [**Q1**, IF 5.69, SJR 1.468, h-index 214]

5. P. Trifonov, **V. Miloslavskaya**, C. Chen, Y. Wang "Fast Encoding of Polar Codes with Reed-Solomon Kernel" // IEEE Transactions on Communications, vol. 64, no. 7, pp. 2746-2753. July 2016. [**Q1**, IF 5.69, SJR 1.468, h-index 214]

6. P. Trifonov, **V. Miloslavskaya** "Polar subcodes" // IEEE Journal on Selected Areas in Communications, vol. 34, no. 2, pp. 254-266. February 2016. [**Q1**, IF 7.172, SJR 2.986, h-index 236]

7. **V. Miloslavskaya** "Shortened polar codes" // IEEE Transactions on Information Theory, vol. 62, no. 9, pp. 4852-4865, September 2015. [**Q1**, IF 3.215, SJR 1.218, h-index 286]

8. **V. Miloslavskaya**, P. Trifonov "Sequential decoding of polar codes" // IEEE Communications Letters. 2014. Vol. 18, no. 7. Pp. 1127–1130. [**Q1**, IF 2.723, SJR 0.929, h-index 148]

9. **V. Miloslavskaya**, P. Trifonov "Sequential Decoding of Polar Codes with Arbitrary Binary Kernel" // Proceedings of IEEE Information Theory Workshop. 2014. Pp. 377-381.

10. **V. Miloslavskaya**, P. Trifonov "Sequential Decoding of Reed-Solomon Codes" // Proceedings of International Symposium on Information Theory and Applications. 2014. Pp. 424-428.

11. P. Trifonov, **V. Miloslavskaya** "Twisted polar codes" // Proceedings of International Symposium on Information Theory and Its Applications. 2014. Pp. 456–460.

12. P. Trifonov, **V. Miloslavskaya** "Polar codes with dynamic frozen symbols and their decoding by directed search" // Proceedings of IEEE Information Theory Workshop. 2013. September. Pp.1–5.

13. **V. Miloslavskaya**, P. Trifonov "Design of binary polar codes with arbitrary kernels" // Proceedings of IEEE Information Theory Workshop. 2012. Pp. 119–123.

14. **V. Miloslavskaya**, P. Trifonov "Performance of binary polar codes with high-dimensional kernel" // Proceedings of

International Workshop on Algebraic and Combinatorial Coding Theory. 2012. Pp. 263–268.

15. **V. Miloslavskaya**, P. Trifonov "Hybrid interpolation algorithm for algebraic soft decision decoding of Reed-Solomon codes" // Proceedings of 8th IEEE International Symposium on Wireless Communication Systems. 2011. Pp. 131–135.

16. **V. Miloslavskaya**, P. Trifonov "Fast interpolation in algebraic soft decision decoding of Reed-Solomon codes" // Proceedings of IEEE R8 International Conference on Computational Technologies in Electrical and Electronics Engineering. 2010. Pp. 65–69.

Information about citations is available at Google Scholar https://scholar.google.com/citations?user=5oFNrPIAAAAJ&hl=en

PATENTS

1. D. Yanovsky, T. Namoradze, **V. D. Miloslavskaya** "Distributed storage system data management and security". **US Patent** 10931402. February 2021.

2. P. V. Trifonov, **V. D. Miloslavskaya**; Samsung Electronics Co., Ltd. "Apparatus and method for encoding and decoding data in twisted polar code". **US Patent** 10326478. June 2019.

3. A. Aliev, P. Trifonov, **V. Miloslavskaya** and A. Alexeev; EMC Corporation. "Load balancing on disks in raid based on linear block codes". **US Patent** 9354975. May 2016.

4. A. Alexeev, P. Trifonov, **V. Miloslavskaya**; EMC Corporation. "Data encoding for data storage system based on generalized concatenated codes". **US Patent** 9356626. May 2016.

5. A. Aliev, **V. Miloslavskaya** and P. Trifonov; EMC Corporation. "Polar codes for efficient encoding and decoding data in redundant disk arrays". **US Patent** 9304859. April 2016.

PATENT APPLICATIONS

V. Miloslavskaya, B. Vucetic; University of Sydney. "Channel encoding method and a channel encoder". PCT international patent application WO 2021/226665 A1. November 2021.

PRESENTATIONS

1. "Design of Error-Correction Codes Decodable as Polar Codes". A technical talk at the Australian Communications Theory Workshop, Sydney, February 2019.

2. "Sequential Decoding of Polar Codes with Arbitrary Binary Kernel". Paper presented at the IEEE Information Theory Workshop. Hobart, Tasmania, Australia, October 2014.

3. "Sequential Decoding of Reed-Solomon Codes". Paper presented at the International Symposium on Information Theory and Applications. Melbourne, Australia, November 2014.

4. "Design of Shortened Polar Codes". Seminar at the Saint-Petersburg State University of Aerospace Instrumentation. Saint-Petersburg, Russia, October 2014.

5. "Sequential Decoding of Polar Codes and Extended Reed-Solomon Codes". Two seminars at the Institute for Information Transmission Problems of the Russian Academy of Sciences. Moscow, Russia, October 2014.

6. "Sequential Decoding of Polar Codes". Seminar at the Saint-Petersburg State University of Aerospace Instrumentation. Saint-Petersburg, Russia, April 2014.

7. "Polar Codes with BCH Kernel". Two seminars at the Institute for Information Transmission Problems of the Russian Academy of Sciences. Moscow, Russia, October and November 2012.

8. "Design of polar codes with arbitrary kernels". Paper presented at the IEEE Information Theory Workshop. Lausanne, Switzerland, September 2012.

9. "Performance of binary polar codes with high-dimensional kernel". Paper presented at the International Workshop on Algebraic and Combinatorial Coding Theory. Pomorie, Bulgaria, June 2012.

10. "Hybrid interpolation algorithm for algebraic soft decision decoding of Reed-Solomon codes". Paper presented at the 8th IEEE International Symposium on Wireless Communication Systems. Aachen, Germany, November 2011.

11. "Fast interpolation in algebraic soft decision decoding of Reed-Solomon codes". Paper presented at the IEEE R8 International Conference on Computational Technologies in Electrical and Electronics Engineering. Listvyanka, Russia, July 2010.

EXTRACURRICULAR ACTIVITIES

Painting, sculpture, dancing and travelling.