Aleksandr Popov

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https://budivoy.github.io/

Employment History

Samsung Research https://research.samsung.com/srukr

2018.04 – … **Staff Engineer, Project Leader, Project Manager** at Samsung R&D Institute Ukraine, Kyiv, Ukraine
My current work focuses on three main directions: (1) machine learning based of usable security solutions for mobile devices, (2) personal data privacy protection, and (3) synthetic data generation. Our team has successfully commercialized on-device privacy protection solution.

2018.10 – 2020.06 **Staff Engineer (global mobility)** at Samsung Research, Seoul, South Korea
Researching for behavioral biometrics approaches. Our team commercialized continuous multi-factor authentication for mobile devices.

2016.04 – 2018.03 **Lead Software Engineer, Project Leader** at Samsung R&D Institute Ukraine, Kyiv, Ukraine
Development and prototyping of data-driven (machine learning based) cyber security solutions. Evaluation and assessment of biometric authentication algorithms.

2013.06 – 2016.03 **Software Engineer** at Samsung R&D Institute Ukraine, Kyiv, Ukraine
Development and prototyping of computer vision and multimedia middleware solutions for mobile and TV operating system.

NASU Institute of Physics, Kyiv, Ukraine http://www.iop.kiev.ua/en/vddl-nelnjno-optiki/

2015.05 – 2017.09 **Junior researcher (part-time)** at Department of nonlinear optics.
Carrying out optical diagnostics of materials using continuous and pulsed lasers. Mathematical modeling.

2012.03 – 2015.04 **Engineer (part-time)** at Department of nonlinear optics.
Carrying out optical diagnostics of materials using continuous and pulsed lasers.

Education

20011 – 2013 **M.Sc. Applied Physics** in High Tech. Physics, National Technical University of Ukraine 'Igor Sikorsky Kyiv Polytechnic Institute'
Thesis: *Effect of sintering temperature on properties of translucent aluminum oxide ceramics fabricated under high pressure*

2007 – 2011 **B.Sc. Applied Physics**, National Technical University of Ukraine 'Igor Sikorsky Kyiv Polytechnic Institute'
Thesis: *Ab initio modeling of electronic structure and elastic properties on* $Zr_{1-x}Nb_x$ *alloy*

Skills

Languages — English - C1, Ukrainian/Russian - native

Leading project & Mngmt. — Leading software engineering teams
Delivering product from prototyping, development to commercialization stage
Stakeholder management

Coding — Python, C/C++, Java (Android), MATLAB/Octave, LaTeX, …

Skills (continued)

Security & Privacy	Biometric authentication algorithms Biometric templates protection methods (e.g., functional encryption, fuzzy extractors) Strong and week/behavioral biometrics: face, fingerprint, voice, iris, gate, keystroke, etc. Privacy-preserving training and inference for machine learning
Machine Learning	Time series (sensor data) classification and anomaly detection Deep learning for image processing Synthetic data generation On-device & server-side ML Data-driven ML MLOps
Misc.	Research and patenting Preparation of educational materials

Research Publications

Conference Proceedings

1. J. H. Huh, S. Kwag, I. Kim, A. Popov, Y. Park, G. Cho, J. Lee, H. Kim, and C.-H. Lee, "On the long-term effects of continuous keystroke authentication: Keeping user frustration low through behavior adaptation," in *ACM on Interactive, Mobile, Wearable and Ubiquitous Technologies*, Association for Computing Machinery, vol. 7, 2023, p. 32.
2. A. Uklein, A. Popov, V. Y. Gayvoronsky, A. Zaderko, V. Kozhanov, O. Y. Boldyrieva, and V. Lisnyak, "Characterization of improved laser phosphate glasses," in *2016 IEEE 7th International Conference on Advanced Optoelectronics and Lasers (CAOL)*, IEEE, 2016, pp. 62–63.
3. V. Gayvoronsky, M. Brodyn, A. Uklein, I. Filipov, A. Popov, V. Kononets, and O. Sidletskiy, "Impact of composition modification of oxyorthosilicates single crystals on pulsed laser radiation self-action effect manifestation," in *International Conference on Oxide Materials for Electronic Engineering-fabrication, properties and applications (OMEE-2014)*, IEEE, 2014, pp. 178–178.
4. V. Y. Gayvoronsky, A. Popov, M. Brodyn, A. Uklein, V. Multian, and O. Shul'zhenko, "The effect of sintering temperature on linear and nonlinear optical properties of YAG nanoceramics," in *Nanocomposites, Nanophotonics, Nanobiotechnology, and Applications: Selected Proceedings of the Second FP7 Conference and International Summer School Nanotechnology: From Fundamental Research to Innovations, August 25-September 1, 2013, Bukovel, Ukraine*, Springer International Publishing Cham, 2014, pp. 147–164.
5. V. Y. Gayvoronsky, M. Kopylovsky, M. Brodyn, A. Popov, V. Yatsyna, and I. Pritula, "Interplay of quadratic and cubic nonlinear optical responses in KDP single crystals with incorporated TiO_2 nanoparticles," in *Nanomaterials Imaging Techniques, Surface Studies, and Applications: Selected Proceedings of the FP7 International Summer School Nanotechnology: From Fundamental Research to Innovations, August 26-September 2, 2012, Bukovel, Ukraine*, Springer New York New York, NY, 2013, pp. 349–365.
6. A. Popov, V. Yatsyna, M. Kopylovsky, I. Pritula, and V. Gayvoronsky, "Impact of self-action effects on second harmonic generation efficiency in KDP crystals with embedded anatase nanoparticles," in *2012 IEEE International Conference on Oxide Materials for Electronic Engineering (OMEE)*, IEEE, 2012, pp. 203–203.

Journal Articles

1. A. V. Uklein, A. S. Popov, V. V. Lisnyak, A. N. Zaderko, R. P. Linnik, O. Y. Boldyrieva, and V. Y. Gayvoronsky, "Probing of the oxygen-related defects response in Nd: Phosphate glass within self-action of the laser radiation technique," *Journal of Non-Crystalline Solids*, vol. 498, pp. 244–251, 2018.
2. A. Popov, A. Uklein, V. Multian, I. Pritula, P. Budnyk, O. K. Khasanov, and V. Y. Gayvoronsky, "Nonlinear optical response of the kdp single crystals with incorporated TiO_2 nanoparticles in visible range: Effect of the nanoparticles concentration," *Functional materials*, 2017.
3. A. Popov, A. Uklein, V. Multian, R. Le Dantec, E. Kostenyukova, O. Bezkrovnaya, I. Pritula, and V. Y. Gayvoronsky, "Nonlinear optical response of nanocomposites based on KDP single crystal with incorporated Al_2O_3*nH_2O nanofibriles under CW and pulsed laser irradiation at 532 nm," *Optics Communications*, vol. 379, pp. 45–53, 2016.
4. A. Popov, A. Uklein, A. Zaderko, V. Kozhanov, V. Lisnyak, and V. Y. Gayvoronsky, "Effect of the Ba/Sr ratio on the optical properties of phosphate laser glass," *Functional materials*, 2016.
5. A. V. Uklein, A. S. Popov, V. V. Multian, M. S. Brodyn, V. V. Kononets, O. T. Sidletskiy, and V. Y. Gayvoronsky, "Photoinduced refractive index variation within picosecond laser pulses excitation as the indicator of oxyorthosilicates single crystals composition modification," *Nanoscale Research Letters*, vol. 10, no. 1, pp. 1–7, 2015.
6. V. Y. Gayvoronsky, M. Kopylovsky, V. Yatsyna, A. Popov, A. Kosinova, and I. Pritula, "Self-focusing effect on the second harmonic generation in the KDP single crystals with incorporated anatase nanoparticles," *Functional Materials*, 2012.

Patents

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1. S. Pedan, O. Kopysov, O. Popov, O. Chalyi, and A. Astrkhantsev, *Foldable device and method for operating same*, WO Patent WO2023140546A1, Jul. 2023.
2. A. Popov, O. Popov, S. Pedan, A. Astrakhantsev, I. Shapoval, O. Konoval, and S. Tverdokhlib, *Electronic device and method of operating the same*, US Patent App. 18/163,589, Aug. 2023.
3. J. Huh, O. Popov, S. Kwag, and I. Kim, *Electronic device, and method for performing user authentication by using input on keyboard in electronic device*, WO Patent WO2021235798A1, Nov. 2021.
4. A. Popov, O. Popov, A. Kulakov, A. Astrakhantsev, O. Shchur, and Y. Tatarinova, *Method for securing image and electronic device performing same*, US Patent US20210342967A1, Nov. 2021.
5. O. Popov, M. Biliavskyi, A. Popov, V. Brynza, and A. Oliynyk, *Electronic device for performing user authentication and operation method therefor*, US Patent US20210342427A1, Nov. 2021.