

Aleksandr Popov





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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-neljno-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

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|--------------------------|---|
| 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, SQL, \LaTeX , ... |

Skills (continued)

Security & Privacy	 Biometric authentication algorithms Biometric templates protection methods (e.g., functional encryption, fuzzy extractors) Strong and weak/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 TiO₂ 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 TiO₂ 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. Bezkrovnyaya, I. Pritula, and V. Y. Gayvoronsky, "Nonlinear optical response of nanocomposites based on KDP single crystal with incorporated Al₂O₃*nH₂O 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

- 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. Biliavskiy, A. Popov, V. Brynza, and A. Oliynyk, *Electronic device for performing user authentication and operation method therefor*, US Patent US20210342427A1, Nov. 2021.