Aleksandr Popov

Staff Engineer | Technical Project Manager @ Samsung R&D Institute Ukraine

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Summary

Staff Engineer and Technical Project Manager with a strong background in research and development, specializing in cybersecurity, data privacy, and machine learning. Experienced in leading multidisciplinary teams to develop and deploy biometric authentication systems, privacy-preserving technologies, and ML-driven solutions. Focused on driving technical innovation, including patentable technologies, and delivering impactful solutions that align with organizational objectives and foster growth.

Skills

Leading Projects & Mngmt.	Managing cross-functional teams
	Delivering product from prototyping, development to commercialization stage
	Risk management, resource allocation, and stakeholder collaboration
Programming Languages	Python, C/C++, Java (Android), MATLAB/Octave, SQL, LaTeX
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
Languages	English (C1), Ukrainian/Russian (Native)

Work Experience

Samsung R&D Institute Ukraine https://research.samsung.com/srukr — *Kyiv, Ukraine*

Staff Engineer | Technical Project Manager — *2018.11 – Present*

- Managed cross-functional projects, ensuring timely delivery and alignment with business objectives.
- Directed the development of ML-based security and privacy technologies for mobile devices, focusing on biometric authentication and synthetic data generation.
- Collaborated with stakeholders to define requirements and ensure clear communication.
- Led teams in implementing privacy-preserving technologies and contributing to patentable innovations in data privacy and ML security.
- Improved processes, focusing on risk management and resource allocation.

Samsung Research — *Seoul, South Korea*

Staff Engineer (Global mobility) — *2018.11 – 2020.06*

- Contributed to research and development of mobile authentication solutions for global markets.
- Collaborated with international teams to prototype and commercialize security technologies, including biometric authentication systems.
- Focused on enhancing privacy-preserving technologies and contributing to patentable innovations in security.

Samsung R&D Institute Ukraine https://research.samsung.com/srukr — *Kyiv, Ukraine*

Project Leader — *2016.07 – 2018.12*

- Led the development of cybersecurity solutions, focusing on mobile and device security.
- Managed teams through the project lifecycle, from design to deployment.
- Collaborated with internal stakeholders to ensure alignment with business and technical goals.
- Contributed to the development of security solutions with a focus on patentable technologies in cybersecurity.

Task Leader *2014.11 – 2016.06*

- Led design, development, and integration tasks for multimedia and computer vision projects, managing a small team and ensuring collaboration with QA engineers.
- Prototyped solutions for stereoscopic 3D recording and video stabilization
- Engineered various APIs (multimedia playback, streaming, OCR) delivering advanced capabilities for mobile and TV operating systems.

Software Engineer *2013.06 – 2014.10*

- Developed middleware for adaptive video streaming protocols (incl. MPEG-DASH, HLS, and Smooth Streaming) for mobile and TV operating systems.
- Enhanced stability, optimized performance, and integrated components into the core multimedia framework of the operating system.

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

Junior researcher (part-time) at Department of nonlinear optics *2015.05 – 2017.09*

- Conducted optical diagnostics of materials using continuous and pulsed lasers.
- Contributed to mathematical modeling efforts.

Engineer (part-time) at Department of nonlinear optics *2012.03 – 2015.04*

- Conducted optical diagnostics of materials using continuous and pulsed lasers.

Education

National Technical University of Ukraine 'Igor Sikorsky Kyiv Polytechnic Institute' *Kyiv, Ukraine*

M.Sc. Applied Physics in High Tech. Physics *2011 – 2013*

Thesis: *Effect of sintering temperature on properties of translucent aluminum oxide ceramics fabricated under high pressure*

B.Sc. Applied Physics *2007 – 2011*

Thesis: *Ab initio modeling of electronic structure and elastic properties on* $Zr_{1-x}Nb_x$ *alloy*

Patents

[1] Pedan, S., Kopysov, O., **Popov, O.**, Chalyi, O., Astrakhantsev, A., *Foldable device and method for operating same*. US Patent App. 18/737,209. Oct. 2024.

[2] **Popov, O.**, Karpenko, D., Gryshchenko, S., Petrychenko, V., Romanko, Y., *Data processing method and device*. WO Patent App. PCT/KR2023/013,150. May 2024.

[3] Progonov, D., **Popov, O.**, Astrakhantsev, A., Motchanyi, A., Li, I., Sokol, O., Sylantiev, V., Romanii, K., *Device and method for acquiring biosignal*. WO Patent App. PCT/KR2023/016,254. May 2024.

[4] Petrychenko, V., Astrakhantsev, A., Oleg, K., Progonov, D., **Popov, O.**, Gryshchenko, S., *Electronic device and method of controlling same*. WO Patent App. PCT/KR2023/001,762. Aug. 2023.

[5] Popov, A., **Popov, O.**, Pedan, S., Astrakhantsev, A., Shapoval, I., Konoval, O., Tverdokhlib, S., *Electronic device and method of operating the same*. US Patent App. 18/163,589. Aug. 2023.

[6] Huh, J., **Popov, O.**, Kwag, S., Kim, I., *Electronic device, and method for performing user authentication by using input on keyboard in electronic device*. WO Patent App. PCT/KR2021/006,152. Nov. 2021.

[7] **Popov, O.**, Biliavskyi, M., **Popov, A.**, Brynza, V., Oliynyk, A., *Electronic device for performing user authentication and operation method therefor*. US Patent App. 17/378,385. Nov. 2021.

[8] Popov, A., **Popov, O.**, Kulakov, A., Astrakhantsev, A., Shchur, O., Tatarinova, Y., *Method for securing image and electronic device performing same*. US Patent App. 17/378,032. Nov. 2021.

Publications

Conference Proceedings

[1] Huh, J. H., Kwag, S., Kim, I., **Popov, A.**, Park, Y., Cho, G., Lee, J., Kim, H., Lee, C.-H., "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*. Vol. 7. 2. Association for Computing Machinery. 2023, p. 32.

[2] Uklein, A., **Popov, A.**, Gayvoronsky, V. Y., Zaderko, A., Kozhanov, V., Boldyrieva, O. Y., Lisnyak, V., "Characterization of improved laser phosphate glasses". In: *2016 IEEE 7th International Conference on Advanced Optoelectronics and Lasers (CAOL)*. IEEE. 2016, pp. 62–63.

[3] Gayvoronsky, V., Brodyn, M., Uklein, A., Filipov, I., **Popov, A.**, Kononets, V., Sidletskiy, O., "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] Gayvoronsky, V. Y., **Popov, A.**, Brodyn, M., Uklein, A., Multian, V., Shul'zhenko, O., "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] Gayvoronsky, V. Y., Kopylovsky, M., Brodyn, M., **Popov, A.**, Yatsyna, V., Pritula, I., "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] **Popov, A.**, Yatsyna, V., Kopylovsky, M., Pritula, I., Gayvoronsky, V., "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] Uklein, A. V., **Popov, A. S.**, Lisnyak, V. V., Zaderko, A. N., Linnik, R. P., Boldyrieva, O. Y., Gayvoronsky, V. Y., "Probing of the oxygen-related defects response in Nd: phosphate glass within self-action of the laser radiation technique". In: *Journal of Non-Crystalline Solids* 498 (2018), pp. 244–251.

[2] **Popov, A.**, Uklein, A., Multian, V., Pritula, I., Budnyk, P., Khasanov, O. K., Gayvoronsky, V. Y., "Nonlinear optical response of the KDP single crystals with incorporated TiO_2 nanoparticles in visible range: effect of the nanoparticles concentration". In: *Functional materials* (2017).

[3] **Popov, A.**, Uklein, A., Multian, V., Le Dantec, R., Kostenyukova, E., Bezkrovnaya, O., Pritula, I., Gayvoronsky, V. Y., "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". In: *Optics Communications* 379 (2016), pp. 45–53.

[4] **Popov, A.**, Uklein, A., Zaderko, A., Kozhanov, V., Lisnyak, V., Gayvoronsky, V. Y., "Effect of the Ba/Sr ratio on the optical properties of phosphate laser glass". In: *Functional materials* (2016).

[5] Uklein, A. V., **Popov, A. S.**, Multian, V. V., Brodyn, M. S., Kononets, V. V., Sidletskiy, O. T., Gayvoronsky, V. Y., "Photoinduced refractive index variation within picosecond laser pulses excitation as the indicator of oxyorthosilicates single crystals composition modification". In: *Nanoscale Research Letters* 10.1 (2015), pp. 1–7.

[6] Gayvoronsky, V. Y., Kopylovsky, M., Yatsyna, V., **Popov, A.**, Kosinova, A., Pritula, I., "Self-focusing effect on the second harmonic generation in the KDP single crystals with incorporated anatase nanoparticles". In: *Functional Materials* (2012).