Dr. Igor Khokhlov

Assistant Professor of Cybersecurity
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Academic and professional experience

2021 – present	**Assistant Professor of Cybersecurity**, Sacred Heart University, School of Computing & Engineering
2020 – 2021	**Postdoctoral Research Scientist**, Rochester Institute of Technology. Automated vulnerability intelligence
2016 – 2020	**Ph.D. student and research assistant**, Rochester Institute of Technology. Advisor: Dr. Leon Reznik
2013 – 2015	**Embedded team leader**, Dynamo Development. Android, Windows and embedded software

Education

2020	**Ph.D., Computing and Information Sciences**, Rochester Institute of Technology
2007	**Master's degree, Electronic Systems**, National Technical University of Ukraine “Igor Sikorsky Kyiv Polytechnic Institute”
2005	**Bachelor's degree, Electronic Systems**, National Technical University of Ukraine “Igor Sikorsky Kyiv Polytechnic Institute”

Research

Published 2026, with simulation artifacts	**Privacy and metadata-resistant communication.** How well can decoy traffic keep an observer of the network from learning who a message was for, and what does that cost in bandwidth and incentives?
Published 2022–2023; ongoing	**AI and machine learning for cybersecurity.** How far can automated analysis take over vulnerability curation from human analysts, and how robust are ML systems when their data or models are attacked or degraded?

Published 2017–2024	**Data quality and security in mobile and IoT systems.** When a system selects or combines sensor data, how should accuracy, reliability and the security of each source be weighed against each other?
Published 2017–2020	**Mobile and Android security.** Can coordinated behavior between apps be recognized from what the operating system observes while they run?
Work in progress	**Business email compromise and explainable AI.** Can a detector catch business email compromise and also explain its reasoning well enough for a person to decide what to do with the alert?

Grants and sponsored research

2022 – 2027	**Increasing Perseverance and Retention of Computing and Engineering Students Through Service**. National Science Foundation. Co-Principal Investigator.
2021 – 2022	**Security Evaluation and Improvement of the Personal Cyberinfrastructure with New Tools and Education Development**. CRDF Global. Co-Principal Investigator.
2020 – 2021	**Self-Learning Capabilities for Mission-Oriented Data Quality and Security Assurance in Military IoT Systems**. U.S. Military Academy / Department of Defense. Co-Principal Investigator.

Teaching

Current courses, Fall 2026

CY-212 / ITI-212	Web Development in UNIX
CY-221	Foundations of Cybersecurity
CY-410	Software and System Security
CY-424	Emerging Trends in Cybersecurity

Graduate courses at Sacred Heart University

CS/CY 626 Introduction to Cybersecurity; CS 627 System Security; CS/CY 660 Special Topics in Cybersecurity; CY 680 Cybersecurity Practicum; CS 690 Thesis I; CY 691 Thesis II.

Undergraduate courses and supervision at Sacred Heart University

CS 241 C Programming Concepts; CSE/CY 125 Explorations; CY 413 Internship in Cybersecurity; CY 414 Directed Research; CY 417/418 Cybersecurity Capstone I and II; CY 419 Cooperative Studies.

Earlier teaching

Foundations of Intelligent Systems (Rochester Institute of Technology); Computer Systems (Rochester Institute of Technology); Object-Oriented Programming (Igor Sikorsky Kyiv Polytechnic Institute).

Publications

Journal articles

[1] S. Chuprov, R. Zatsarenko, L. Reznik, and **I. Khokhlov** (2024). Data Quality Based Intelligent Instrument Selection with Security Integration. *ACM Journal of Data and Information Quality*, 16(3), Article 15, pp. 1–24. doi:10.1145/3695770

[2] A. Okutan, P. Mell, M. Mirakhorli, **I. Khokhlov**, J. C. S. Santos, D. Gonzalez, and S. Simmons (2023). Empirical Validation of Automated Vulnerability Curation and Characterization. *IEEE Transactions on Software Engineering*, 49(5), pp. 3241–3260. doi:10.1109/TSE.2023.3250479

[3] **I. Khokhlov**, L. Reznik, and S. Chuprov (2021). Framework for Integral Data Quality and Security Evaluation in Smartphones. *IEEE Systems Journal*, 15(2), pp. 2058–2065. doi:10.1109/JSYST.2020.2985343

[4] H. Alrubaye, M. W. Mkaouer, **I. Khokhlov**, L. Reznik, A. Ouni, and J. McGoff (2020). Learning to Recommend Third-Party Library Migration Opportunities at the API Level. *Applied Soft Computing*, Vol. 90, Article 106140. doi:10.1016/j.asoc.2020.106140

[5] **I. Khokhlov**, L. Reznik, and S. Ajmera (2020). Sensors in Mobile Devices Knowledge Base. *IEEE Sensors Letters*, 4(3), pp. 1–4. doi:10.1109/LSENS.2020.2975161

Conference papers

[1] **I. Khokhlov**, Y. Khokhlov, and O. Weissman (2026). G.H.O.S.T: A Scalable Framework for Metadata-Resistant Messaging with Token-Based Incentives. *Proceedings of the 12th International Conference on Information Systems Security and Privacy (ICISSP 2026)*, Vol. 2, pp. 431–438. doi:10.5220/0014610100004061

[2] **I. Khokhlov**, A. Okutan, R. Bryla, S. Simmons, and M. Mirakhorli (2022). Automated Extraction of Software Names from Vulnerability Reports Using LSTM and Expert System. *2022 IEEE 29th Annual Software Technology Conference (STC)*, pp. 125–134. doi:10.1109/STC55697.2022.00024

[3] **I. Khokhlov**, S. Chuprov, and L. Reznik (2022). Integrating Security with Accuracy Evaluation in Sensors Fusion. *2022 IEEE Sensors*, pp. 1–4. doi:10.1109/SENSORS52175.2022.9967235

[4] S. Chuprov, L. Reznik, **I. Khokhlov**, and K. Manghi (2022). Multi-Modal Sensor Selection with Genetic Algorithms. *2022 IEEE Sensors*, pp. 1–4. doi:10.1109/SENSORS52175.2022.9967296

[5] S. Chuprov, **I. Khokhlov**, L. Reznik, and S. Shetty (2022). Influence of Transfer Learning on Machine Learning Systems Robustness to Data Quality Degradation. *2022 International Joint Conference on Neural Networks (IJCNN)*, pp. 1–8. doi:10.1109/IJCNN55064.2022.9892247

[6] S. Chuprov, I. Viksnin, I. Kim, T. Melnikov, L. Reznik, and **I. Khokhlov** (2021). Improving Knowledge Based Detection of Soft Attacks Against Autonomous Vehicles with Reputation, Trust and Data Quality Service Models. *2021 IEEE International Conference on Smart Data Services (SMDS)*, pp. 115–120. doi:10.1109/SMDS53860.2021.00025

[7] **I. Khokhlov**, N. Ligade, and L. Reznik (2020). Recurrent Neural Networks for Colluded Applications Attack Detection in Android OS Devices. *2020 International Joint Conference on Neural Networks (IJCNN)*, pp. 1–8. doi:10.1109/IJCNN48605.2020.9207339

[8] **I. Khokhlov**, L. Reznik, and S. E. Lyshevski (2020). Adaptive Data Fusion in Inertial Sensors and Data Quality Analysis of Sensor Networks. *2020 IEEE 40th International Conference on Electronics and Nanotechnology (ELNANO)*, pp. 430–435. doi:10.1109/ELNANO50318.2020.9088859

[9] S. Chuprov, I. Viksnin, I. Kim, L. Reznik, and **I. Khokhlov** (2020). Reputation and Trust Models with Data Quality Metrics for Improving Autonomous Vehicles Traffic Security and Safety. *2020 IEEE Systems Security Symposium (SSS)*, pp. 1–8. doi:10.1109/SSS47320.2020.9174269

[10] **I. Khokhlov** and L. Reznik (2020). What Is the Value of Data Value in Practical Security Applications. *2020 IEEE Systems Security Symposium (SSS)*, pp. 1–8. doi:10.1109/SSS47320.2020.9174457

[11] S. Chuprov, E. Marinenkov, I. Viksnin, L. Reznik, and **I. Khokhlov** (2020). Image Processing in Autonomous Vehicle Model Positioning and Movement Control. *2020 IEEE 6th World Forum on Internet of Things (WF-IoT)*, pp. 1–6. doi:10.1109/WF-IoT48130.2020.9221258

[12] **I. Khokhlov** and L. Reznik (2020). Knowledge Graph in Data Quality Evaluation for IoT Applications. *2020 IEEE 6th World Forum on Internet of Things (WF-IoT)*, pp. 1–6. doi:10.1109/WF-IoT48130.2020.9221091

[13] **I. Khokhlov**, M. Perez, and L. Reznik (2019). Machine Learning in Anomaly Detection: Example of Colluded Applications Attack in Android Devices. *2019 18th IEEE International Conference on Machine Learning and Applications (ICMLA)*, pp. 1328–1333. doi:10.1109/ICMLA.2019.00216

[14] **I. Khokhlov**, L. Reznik, and R. Bhaskar (2019). The Machine Learning Models for Activity Recognition Applications with Wearable Sensors. *2019 18th IEEE International Conference on Machine Learning and Applications (ICMLA)*, pp. 387–391. doi:10.1109/ICMLA.2019.00072

[15] **I. Khokhlov**, M. Perez, and L. Reznik (2019). System Signals Monitoring and Processing for Colluded Application Attacks Detection in Android OS. *2019 IEEE Western New York Image and Signal Processing Workshop (WNYISPW)*, pp. 1–5. doi:10.1109/WNYIPW.2019.8923113

[16] **I. Khokhlov**, A. Pudage, and L. Reznik (2019). Sensor Selection Optimization with Genetic Algorithms. *2019 IEEE Sensors*, pp. 1–4. doi:10.1109/SENSORS43011.2019.8956579

[17] **I. Khokhlov**, Q. Li, and L. Reznik (2019). D.I.F.E.N.S.E.: Distributed Intelligent Framework for Expendable Android Security Evaluation. *The 14th Annual Symposium on Information Assurance (ASIA '19)*, pp. 18–27.

[18] **I. Khokhlov**, C. Jain, B. Miller-Jacobson, A. Heyman, L. Reznik, and R. St. Jacques (2018). MeetCI: A Computational Intelligence Software Design Automation Framework. *2018 IEEE International Conference on Fuzzy Systems (FUZZ-IEEE)*, pp. 1–8. doi:10.1109/FUZZ-IEEE.2018.8491664

[19] A. Killawala, **I. Khokhlov**, and L. Reznik (2018). Computational Intelligence Framework for Automatic Quiz Question Generation. *2018 IEEE International Conference on Fuzzy Systems (FUZZ-IEEE)*, pp. 1–8. doi:10.1109/FUZZ-IEEE.2018.8491624

[20] **I. Khokhlov**, L. Reznik, J. Cappos, and R. Bhaskar (2018). Design of Activity Recognition Systems with Wearable Sensors. *2018 IEEE Sensors Applications Symposium (SAS)*, pp. 1–6. doi:10.1109/SAS.2018.8336752

[21] A. Vora, L. Reznik, and **I. Khokhlov** (2018). Mobile Road Pothole Classification and Reporting with Data Quality Estimates. *2018 Fourth International Conference on Mobile and Secure Services (MobiSecServ)*, pp. 1–6. doi:10.1109/MOBISECSERV.2018.8311437

[22] **I. Khokhlov** and L. Reznik (2018). Android System Security Evaluation. *2018 15th IEEE Annual Consumer Communications & Networking Conference (CCNC)*, pp. 1–2. doi:10.1109/CCNC.2018.8319325

[23] **I. Khokhlov**, L. Reznik, and S. B. Jothilingam (2018). What Can Data Analysis Recommend on Design of Wearable Sensors? *2018 15th IEEE Annual Consumer Communications & Networking Conference (CCNC)*, pp. 1–2. doi:10.1109/CCNC.2018.8319288

[24] **I. Khokhlov** and L. Reznik (2017). Colluded Applications Vulnerabilities in Android Devices. *2017 IEEE DASC/PiCom/DataCom/CyberSciTech*, pp. 462–469. doi:10.1109/DASC-PICom-DataCom-CyberSciTec.2017.89

[25] **I. Khokhlov**, L. Reznik, A. Kumar, A. Mookherjee, and R. Dalvi (2017). Data Security and Quality Evaluation Framework: Implementation Empirical Study on Android Devices. *2017 20th Conference of Open Innovations Association (FRUCT)*, pp. 161–168. doi:10.23919/FRUCT.2017.8071307

[26] **I. Khokhlov** and L. Reznik (2017). Data Security Evaluation for Mobile Android Devices. *2017 20th Conference of Open Innovations Association (FRUCT)*, pp. 154–160. doi:10.23919/FRUCT.2017.8071306

Preprints

[1] M. Fazelnia, **I. Khokhlov**, and M. Mirakhorli (2022). Attacks, Defenses, And Tools: A Framework To Facilitate Robust AI/ML Systems. *arXiv preprint*, arXiv:2202.09465. arxiv.org/abs/2202.09465

Dissertation

[1] **I. Khokhlov** (2020). Integrated Framework for Data Quality and Security Evaluation on Mobile Devices. *Doctoral dissertation, Rochester Institute of Technology*.

Reports

[1] L. Reznik and **I. Khokhlov** (2020). From Data Communication to Delivery of Quality Data. *White paper*.

Talks and service

March 2026	**Session chair, Security Testing**. ICISSP 2026.
January 2025	**How AI Can Be Used to Enhance Your Cybersecurity**. BrightTALK webinar.
2024 – 2025	**Faculty Presidential Seminar participant**. Sacred Heart University.
Ongoing	**Artificial Intelligence Committee**. Sacred Heart University, with curriculum and accreditation work.
Ongoing	**Public talks on cybersecurity and privacy**. Local libraries and media appearances.
March 2018	**Data Quality and Security Evaluation Framework, with Leon Reznik**. Trusted CI webinar.

Profiles

Google Scholar	scholar.google.com/citations?user=NrrJOskAAAAJ&hl=en
Sacred Heart faculty profile	sacredheart.edu/phonebook/igor-khokhlov.php
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