Dimitrios Kaltsogiannis

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RESEARCH INTERESTS

Reinforcement Learning, Game Theory, Integrated Sensing & Communication (ISAC), Wireless Sensing & Localization, UAV Networks & Low Altitude Economy, Energy-Aware Edge Computing, Decision-Making Under Uncertainty

EDUCATION & RESEARCH EXPERIENCE

PhD in Computer Engineering (Electrical Engineering) *Started Aug 2025*
Arizona State University (ASU), Tempe, AZ
GPA: 3.89/4.00
Graduate Research Associate at Performance and Resource Optimization in Networks Lab (PROTON Lab), ASU
Advisor: Prof. Eirini Eleni Tsiropoulou

- Design game-theoretic, regret-learning algorithms that let drones and devices coordinate without central control, for GNSS-denied swarm localization (joint peer selection and power control) and over-the-air generative semantic communication
- Develop distributed power control that lets ground sensors aggregate their data to UAVs through over-the-air computation, balancing accuracy and energy, and evaluate it through simulations with 3GPP channel models
- Apply deep reinforcement learning to drone autonomy: multi-agent DRL (Dec-POMDP, soft actor-critic) for LLM-orchestrated swarms, and Maskable PPO with a physics-based energy model for drone pickup scheduling
- Co-design AI-native integrated sensing and communication (ISAC) frameworks for Industrial IoT coexistence, and agentic edge intelligence for secure, energy-aware drone safe landing

Joint BSc & MEng in Electrical & Computer Engineering *Grad. Jun 2026*
National Technical University of Athens (NTUA), Greece

- **Thesis:** *Optimizing Scheduling on Heterogeneous Resources for ML Pipelines*
  Network Management & Optimal Design Laboratory (NETMODE Lab), Advisor: Prof. Symeon Papavassiliou

SELECTED PUBLICATIONS

- **D. Kaltsogiannis**, A. Sabyrbek, E. E. Tsiropoulou: "Large Language Model-Driven Low Altitude Economy Enabled by Over-the-Air Computation".
  IEEE Network, 2026
- K. M. Rumman, **D. Kaltsogiannis**, E. E. Tsiropoulou: "Intelligent Drone Pickup Scheduling via Deep Reinforcement Learning in Low Altitude Economy Networks".
  Internet of Things (Elsevier), 2026
- A. Sabyrbek, K. M. Rumman, **D. Kaltsogiannis**, M. Diamanti, P. Charatsaris, E. E. Tsiropoulou, S. Papavassiliou: "AI-Native Integrated Sensing and Communication for Context-Aware Industrial IoT Coexistence".
  IEEE Internet of Things Magazine, 2026
- K. M. Rumman, **D. Kaltsogiannis**, E. E. Tsiropoulou: "Agentic Edge Intelligence for Low Altitude Economy Drone Safe Landing with Secure ISAC and Energy Aware Control".
  IEEE Transactions on Consumer Electronics, 2026
- **D. Kaltsogiannis**, A. Sabyrbek, A. Riker, E. E. Tsiropoulou: "Low Altitude Economy Drone Swarm Localization via Distributed Regret Learning".
  IEEE Access, 2026
- **D. Kaltsogiannis**, A. Sabyrbek, E. E. Tsiropoulou: "Wireless Sensing Enabled by Unmanned Aerial Vehicles and Regret Learning".
  Computer Communications (Elsevier), Under Review
- **D. Kaltsogiannis**, E. E. Tsiropoulou: "Over-the-Air Generative Semantic Communication for Low Altitude Economy Networks".
  IEEE International Conference on Communications (ICC), 2027, Under Review

INDUSTRY EXPERIENCE

Lead Software Engineer *Apr 2022 - May 2024*
Spotawheel, Nea Ionia, Greece

- Led a team of 8 web developers and software engineers. Managed projects end-to-end, from designing, planning, and budgeting to delivery
- Managed and contributed to R&D projects that designed algorithms and software architectures for optimization and cost efficiency
- Collaborated with the data science team to integrate computer vision and ML models into production, supporting the company's €100M Series B funding round
- Conducted comprehensive code reviews which ensured adherence to best practices, optimized performance, and maintained high code quality standards across the development team

Lead Back-End Engineer *Sep 2021 - Apr 2022*
Spotawheel, Nea Ionia, Greece

- Led a team of 4 web developers, mentored junior developers, and served as Scrum Master for Agile ceremonies
- Redesigned high-traffic API endpoints to stay reliable under heavy load, and managed critical database and application servers with zero downtime and efficient resource allocation
- Optimized queries on tables with millions of records for efficient data retrieval

Software Engineer *Sep 2020 - Sep 2021*
Spotawheel, Nea Ionia, Greece

- Built a scalable multi-tenant application and developed and optimized REST API services
- Developed and optimized the back-end of a web scraping application, which collected and managed large amounts of data daily

LEADERSHIP & SERVICE

Treasurer *Feb 2026 - Present*
IEEE Communications Society (ComSoc) Student Branch Chapter, ASU

- Manage the chapter's finances for technical talks, workshops, and networking events

SKILLS

Python, PyTorch, PHP, C/C++, Java, JavaScript, MATLAB, Git, Laravel, PHPUnit PostgreSQL, MySQL, Redis, Elasticsearch, Meilisearch, Laravel Sail, Docker, Kubernetes, Laravel Forge, Envoyer, Grafana, Sentry, RabbitMQ, Vagrant, Unix, DigitalOcean, CI/CD, Bitbucket Pipelines, GitHub Actions, AWS Cloud Services, Google Cloud BigQuery

HONORS AWARDS

☆ **ASU Fulton Scholarship** *Aug 2025*
A one-time award for exceptional incoming PhD students

☆ **Employee of the Month at Spotawheel** *Aug 2022*
Selected as the first-ever Employee of the Month, earning top votes among approx. 400 employees company-wide, highlighting performance and contributions