

Remous-Aris Koutsiamanis



Curriculum Vitae

🌐 www.ariskou.com

Formal Education

- PhD¹** 30/10/2007–26/02/2016
Distributed management of competitive access to common resources using algorithmic game theory
Supervised by Pavlos S. Efraimidis, Associate Professor
Algorithms and Privacy Research Unit of the Internetworked Systems Lab
Department of Electrical and Computer Engineering of the Democritus University of Thrace, Greece
- MSc in Artificial Intelligence** 01/09/2005 - 31/08/2006
Adaptive agents for the ART testbed
Supervised by Michael Rovatsos, Senior Lecturer
Agents Group of the Centre for Intelligent Systems and their Applications
School of Informatics, College of Science and Engineering, University of Edinburgh, United Kingdom
- Diploma in Informatics, with distinction (8.73/10)** 04/10/1999 - 08/07/2005
Department of Informatics, University of Piraeus, Greece

Distinctions

- Scholarship** 01/09/2005 - 31/08/2006
Full scholarship (tuition & living expenses) from the Bodossaki Institute, Greece, to pursue the MSc in Artificial Intelligence.

References

- **Pavlos S. Efraimidis**, Relationship: *PhD supervisor*
Associate Professor, Dept. of Electrical and Computer Engineering of the Democritus University of Thrace, Greece
✉ pefraimi@ee.duth.gr • 📞 (+30) 25410-79756 • 🌐 euclid.ee.duth.gr/pavlos-s-efraimidis-bio
- **Christos Emmanouilidis**, Relationship: *Head of Computational Systems & Applications, Athena RIC*
Currently Senior Lecturer, School of Aerospace, Transport and Manufacturing, Cranfield University, U.K.
Formerly Research Director & Senior Researcher at Athena Research & Innovation Centre
✉ christosem@cranfield.ac.uk • 🌐 www.researchgate.net/profile/Christos_Emmanouilidis
- **Vassilis Tsaoussidis**, Relationship: *Head of Internetworked Systems Lab, DUTH & PhD committee member*
Professor, Dept. of Electrical and Computer Engineering of the Democritus University of Thrace, Greece
✉ vtsaousi@ee.duth.gr • 📞 (+30) 25410-79553 • 🌐 www.intersys-lab.org/pages/members/vassilis-tsaoussidis.php
- **Raian Ali**, Relationship: *Associate Professor & Head of Research in the Department of Computing and Informatics, Bournemouth University, U.K.*
✉ rali@bournemouth.ac.uk • 📞 +44 (0) 1202 966 682 • 🌐 rali.bournemouth.ac.uk

¹see last section ‘Software Developer Portfolio’ on p. 8 for more details on related software development skills

Other Education

Summer School

Summer School on Algorithmic Game Theory 14/07/2012 - 21/07/2012
AI Lab, University of the Aegean, Greece

Online Courses

Studied at Coursera.org

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|---|------------|
| Principles of Reactive Programming (Advanced Scala), 100.0% with distinction | 04/11/2013 |
| Computing for Data Analysis (R), 99.0% with distinction | 02/01/2013 |
| Algorithms: Design and Analysis, Part 2, 85.6% | 03/12/2012 |
| Heterogeneous Parallel Programming (CUDA), 100.0% with distinction | 28/11/2012 |
| Functional Programming Principles in Scala, 87.5% with distinction | 18/09/2012 |

Skills Training

Attended at the Edinburgh University Student's Association, Edinburgh, United Kingdom

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|---|------------|
| Presentation Skills (Student development programme) | 12/10/2005 |
| Communication Skills (Student development programme) | 19/10/2005 |
| Assertiveness Skills (Student development programme) | 02/11/2005 |

Publications

Publications as part of PhD studies

Publications in International Journals

- **Implementing PacketEconomy: distributed money-based QoS in OMNET++**
Remous-Aris Koutsiamanis, Pavlos S. Efraimidis,
International Journal of Communication Systems
John Wiley & Sons Ltd, ISSN 1099-1131, DOI 10.1002/dac.3252, Dec. 20, 2016.
- **Prince: an Effective Router Mechanism for Active Queue Management**
Lazaros Tsavlidis, Pavlos S. Efraimidis, **Remous-Aris Koutsiamanis**
Journal of Internet Engineering
Vol 6, No 1, Feb. 2016.
- **A Game-theoretic Analysis of Preventing Spam over Internet Telephony via Audio CAPTCHA-based Authentication**
Yannis Soupionis, **Remous-Aris Koutsiamanis**, Pavlos S. Efraimidis, Dimitrios Gritzalis
Journal of Computer Security
IOS Press, Vol 22, pp. 383-413, ISSN 1875-8924, DOI 10.3233/JCS-140496, 2014.
- **A Heaviest Hitters Limiting Mechanism with O(1) Time Complexity for Sliding-window Data Streams**
Remous-Aris Koutsiamanis, Pavlos S. Efraimidis
Journal of Internet Technology
Vol 14, No 1, pp.117-126, ISSN 1607-9264, DOI 10.6138/JIT.2013.14.1.12, Jan. 2013.

Publications in International Conferences

- **Money-based Coordination of Network Packets**
Pavlos S. Efraimidis, **Remous-Aris Koutsiamanis**
Proceedings of the 8th International Conference on Algorithms and Complexity (CIAC 2013)
Barcelona, Spain, LNCS 7878, pp. 197-208, Springer, 2013.
- **An Exact and O(1) Time Heaviest and Lightest Hitters Algorithm for Sliding-window Data Streams**
Remous-Aris Koutsiamanis, Pavlos S. Efraimidis
Proceedings of the 5th FTRA International Conference on Multimedia and Ubiquitous Engineering (MUE 2011)
Loutraki, Greece, June 28-30, 2011.

Publications in International Journals

- **Mobile guides: Taxonomy of Architectures, Context Awareness, Technologies and Applications**
Christos Emmanouilidis, **Remous-Aris Koutsiamanis**, Aimilia Tasidou
Journal of Network and Computer Applications
Vol 36, No 1, pp. 103-125, ISSN 1084-8045, DOI 10.1016/j.jnca.2012.04.007, 2013.

Publications in International Conferences

- **Personalised cloud-based recommendation services for creative tourism**
Christos Emmanouilidis, **Remous-Aris Koutsiamanis**, Aimilia Tasidou, Pavlos S. Efraimidis, Ioannis Refanidis
Heritage Tourism and Hospitality International Conference
Istanbul, Turkey, Nov. 2014.
- **MyVisitPlanner^{GR}: Personalized Itinerary Planning System for Tourism**
Ioannis Refanidis, Christos Emmanouilidis, Ilias Sakellariou, Anastasios Alexiadis, **Remous-Aris Koutsiamanis**, Konstantinos Agnantis, Aimilia Tasidou, Fotios Kokkoras, Pavlos S. Efraimidis
Artificial Intelligence: Methods and Applications
Proceedings of the 8th Hellenic Conference on AI, SETN 2014, Ioannina, Greece, May 15-17, 2014.
Lecture Notes in Computer Science, Vol. 8445, pp. 615–629, DOI: 10.1007/978-3-319-07064-3_53.

Book Chapters

- **Supporting Cultural Route Sustainability via innovative digital heritage applications and services**
Christos Emmanouilidis, **Remous-Aris Koutsiamanis**, Aimilia Tasidou, Stefanie Leontiadis
Manual of Wise Management, Preservation, Reuse and Economic Valorisation; of Architecture, of Totalitarian Regimes, of the 20th Century
ISBN 978-961-6823-32-6, pp. 176–182, 2013.

Publications as part of Undergraduate studies

Publications in International Journals

- **An Unreal Based Platform for Developing Intelligent Virtual Agents**
N. Avradinis, S. Vosinakis, T. Panayiotopoulos, A. Belesiotis, I. Giannakas, **R. Koutsiamanis**, K. Tilelis
WSEAS Transactions On Information Science & Applications
Vol 1, No 2, pp. 752-756, ISSN 1790-0832, Aug. 2004.
- **Network-Based Architectures for Intelligent Virtual Environments-The NAIIVE case**
N. Avradinis, A. Belesiotis, I. Giannakas, **R. Koutsiamanis**, T. Panayiotopoulos, K. Tilelis
WSEAS Transactions On Information Science & Applications
Vol 1, No 2, pp. 762-766, ISSN 1790-0832, Aug. 2004.

Publications in International Conferences

- **Programmable Intelligent Virtual Agents Over Unreal**
N. Avradinis, A. Belesiotis, I. Giannakas, **R. Koutsiamanis**, K. Tilelis, T. Panayiotopoulos
Proceedings of the WSEAS International Conference on Applied Mathematics
Corfu, Greece, August 17-19, 2004.
- **NAIIVE: Network bAsed Intelligent Virtual Environments**
N. Avradinis, A. Belesiotis, I. Giannakas, **R. Koutsiamanis**, T. Panayiotopoulos
Proceedings of the WSEAS International Conference on Applied Mathematics
Corfu, Greece, August 17-19, 2004.

Reviewer

- **Sustainability**, Journal, 2017
- **The 21st European Symposium on Research in Computer Security (ESORICS) 2016**, Heraklion, Greece, September 28-30, 2016
- **Computers & Security**, Journal, 2014 (subreviewer)
- **Computers & Electrical Engineering**, Journal, 2014
- **The 7th FTRA International Conference on Multimedia and Ubiquitous Engineering (MUE 2013)**, Daegu, Korea, May 9-11, 2013
- **IEEE Transactions on Network and Service Management**, Journal, 2013
- **16th Panhellenic Conference on Informatics with International Participation (PCI 2012)**, Piraeus, Greece, October 5-7, 2012
- **4th Balkan Conference in Informatics (BCI 2009)**, Thessaloniki, Greece, 17-19 September, 2009
- **13th Panhellenic Conference on Informatics (PCI 2009)**, Corfu, Greece, 10-12 September 2009
- **3rd Panhellenic Student Conference (Student Eureka 2009)**, Corfu, Greece, 10-12 September 2009.

Work Experience

Research

Post-doctoral Research Assistant at Bournemouth University, 06/02/2017 - today
Faculty of Science & Technology, Department of Computing and Informatics

Participation in project:

- Digital Addiction Tracker - Experimental Platform for Monitoring and Changing Smartphone Usage²

Tasks performed:

- Requirements gathering and analysis.
- Design and implementation of mobile application (Android).
- Design and implementation of web-based management application.

Post-doctoral Research Assistant at Bournemouth University, 01/11/2015 - 31/07/2016
Faculty of Science & Technology, Department of Computing and Informatics

Participation in project:

- FoodSMART - Shaping smarter consumer behaviour and food choice²

Tasks performed:

- Requirements gathering and analysis.
- Design and implementation of mobile application (Android).
- Dissemination activities.

Postgraduate Researcher at Athena Research and Innovation Center, 01/02/2008 - 31/05/2009
Xanthi branch, Department of Computational Systems and Applications 02/02/2011 - 17/12/2014

Participation in projects:

- MyVisitPlanner - Personalized System for Cultural Itineraries Planning²
- Creation of Interactive Multimedia Applications for the Archaeological Museum of Arta and installation of Infokiosks (approximate translation from Greek)
- Excellence among Research Centers supervised by the GSRT

Tasks performed:

- Research proposal writing.
- Research paper writing.
- State-of-the-art surveys on context awareness, mobile guides and recommendation systems.
- Deliverables and reports writing.
- Dissemination activities.

²see last section 'Software Developer Portfolio' on p. 8 for more details on related software development skills

- Project requirements gathering.
- Design of system architecture.
- Data model and database design and implementation.
- Design and implementation of Content Management System (CMS).
- Design and implementation of interactive multimedia user interfaces for Infokiosks.
- Design and implementation of machine learning subsystem for personalized recommendation generation.

Teaching Assistant

Performed at the Democritus University of Thrace, Department of Electrical Engineering & Computer Engineering, Xanthi, Greece.

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| Data Structures (3rd year course) | Fall Semester 2013-2014 |
| Data Structures (3rd year course) | Fall Semester 2011-2012 |
| Special Topics on Algorithms and Programming (4th year course) | Fall Semester 2010-2011 |
| Object-oriented Programming (C++) (2nd year course) | Fall Semester 2010-2011 |
| Structured Programming 3 - The Java Programming Language (2nd year course) | Spring Semester 2009 |
| Structured Programming 1 - The C Programming Language (1st year course) | Spring Semester 2009 |
| Special Topics on Algorithms and Programming (4th year course) | Fall Semester 2008-2009 |
| Structured Programming 1 - The C Programming Language (1st year course) | Spring Semester 2008 |

Teaching

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|---|-------------------------|
| Secondary Education (Lyceum) Informatics Teacher <i>2nd Unified Upper Secondary School (Lyceum) of Kos, Greece.</i> | 19/11/2009 - 31/08/2010 |
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- Teaching informatics in secondary education
- Computer lab administrator

Technical

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|---|-------------------------|
| Software Designer and Developer <i>Polichromo S.A., Athens, Greece.</i> | 01/03/2004 - 31/08/2004 |
|---|-------------------------|

Design and implementation of a multimedia home entertainment application (similar to MythTV) on a Small Form Factor PC.

- Development of multimedia browser (recognition of file type, generation of thumbnails, file browser, play-list manager).
- Development of multimedia viewer (video and audio file playing, interfacing with open source libxine software library).
- Streaming video client
- TV broadcast receiver and recorder (receiving and displaying TV broadcast, displaying and managing channel list).

Skills

Language Skills

English → Fluent/C2 (Cambridge Certificate of Proficiency, CB-TOEFL 300/300)

Greek → Fluent/C2 (native speaker)

French → Beginner/A1-A2 (8 months part-time group tutoring)

Operating Systems

GNU/Linux → Advanced (Arch Linux, Fedora, Ubuntu)

Microsoft Windows → Advanced user, basic administration, most versions (95 - 8, 2012 Server)

Virtualization → Intermediate (KVM, VMware, VirtualBox)

Software Development

Programming Languages

C & C++ → Advanced (up to C++ 11)

Python → Advanced

Scala → Advanced

Java → Advanced

Haskell → Intermediate

Networking

OMNET++ Network Simulation → Advanced

NS-2 Network Simulation → Basic

TCP/IP sockets → Intermediate (sync & async approaches)

Linux kernel networking subsystem → Basic

Analysis → Intermediate (tcpdump & WireShark)

Distributed and Parallel Programming

Shared Memory Programming → Advanced (OpenMP, threading in C++, Java, Python, Scala & others)

Concurrent Programming → Intermediate (Futures, Promises, Actors)

Cloud Computing and Big Data → Intermediate (Python/PiCloud, Hadoop & Mahout, Google Cloud Compute)

Application Development

Server Side → Intermediate (Java Web Services, Python/Pylons & TurboGears, Haskell/Servant)

Web → Intermediate (HTML5, CSS & SASS, ES6 / Javascript, React, Redux)

Mobile → Advanced (Android: UI, Services, Reactive - RxJava)

Databases → Intermediate (SQL, PostgreSQL, MySQL, SQLite, XML)

ORM tools → Advanced (JPA, Hibernate, SQLAlchemy)

Software Engineering

UML → Intermediate

Standard Model-View-Controller (MVC) designs → Intermediate

Source Code Control → Advanced (Git, Mercurial, Subversion)

Standard Programming Techniques → Advanced (Testing, Debugging, Code Coverage, Profiling)

Scientific Analysis & Visualization & Writing

Creating graphs and diagrams → Intermediate (Matplotlib, SciPy, Matlab, R, Graphviz)

Statistics → Intermediate (R)

Computational tools → Intermediate (Mathematica, Matlab, Python/NumPy, R)

Scientific writing tools → Advanced (LaTeX/BibTeX, Word/EndNote)

Writing project proposals → Intermediate (contributed to more than 5)

Computer Security Experience

Cyber Security Exercises

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| Cyber Defence Exercise (CDX) Cyber Protector 2014-A (Blue Team - Defence) | 18/03/2014 - 19/03/2014 |
| PANOPTIS 2013 Greek Cyber Warfare Exercise (Blue Team - Defence) | 21/01/2013 - 25/01/2013 |
| PANOPTIS 2011 Greek Cyber Warfare Exercise (Blue Team - Defence) | 31/10/2011 - 04/11/2011 |
| The 3rd NATO Cyber Defence Exercise (Blue Team - Defence) | 16/11/2010 - 18/11/2010 |
| PANOPTIS 2010 Greek Cyber Warfare Exercise (Blue Team - Defence) | 18/05/2010 - 20/05/2010 |

Telecommunications security

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|--|------------------------|
| Signal detection | Sept. 2007 - Feb. 2008 |
| <i>Compulsory military service in Greek Army</i> | |
| ○ Wireless military telecommunications monitoring software development | |

Other Skills

Driving License → B, B1

Software Developer Portfolio

Research-oriented software development

PhD research

~9 years, 2007–2016

Designed and developed algorithms for network Quality of Service (QoS). Used OMNET++ and the INET framework to implement the needed modules. The produced results were read, preprocessed, analysed and presented in figures and tables. The simulation executed were more than 300000 leading to the use of the Google Cloud Platform to execute them in parallel.

Tools used:

- Python 2 → Algorithm and system prototyping
- C++ 11 → OMNET++ modules implementing algorithms
- Haskell → Parsing and preprocessing the simulation results
- R → Statistical analysis and data summarisation and visualisation
- Google Cloud Compute → Parallel execution of simulations
- Google Cloud Storage → Storage of simulation results
- Git and Bitbucket → Version control system and hosting
- Arch Linux → Operating system

MyVisitPlanner service

~4 years, 2011–2014

Designed and developed the back-end webservice for the myVisitPlanner project. The service allows users to automatically plan multi-day trips to northern Greece, taking into account user preferences for time activities and user scheduling conflicts / unavailability. The site allows the users to configure their profile in terms of preferences for and against predefined activity types as well as preferences for activity duration. The site optionally also allows users to define specific parts of the trip as being unavailable either manually or by importing a calendar. The user is then presented with multiple alternative trip schedules which take into account the preferences and restrictions of the user as well as the time required for each activity and the time required to travel to the next one. The schedule can be printed or exported.

Responsibilities included:

- Design and implementation of web-service for CRUD data access, implemented with Java 7. Used libraries and tools:
 - Hibernate → JPA 2 compliant persistence library
 - EclipseLink MOXy → JAXB compliant XML (de)serialisation library
 - JUnit → Unit-testing library
- Design and implementation of recommendation system for activities, implemented with Scala. The system used a custom combination of hierarchical clustering and collaborative filtering. Used libraries and tools:
 - Apache Hadoop → Framework used to run the recommendation algorithms in a distributed manner
 - Apache Mahout → Library of scalable machine learning algorithms, used in the recommendation system
 - Scalding → A Scala API for Cascading, used to create the processing pipeline in the recommendation system
 - Scalaz → An extension to the core Scala library for functional programming

Other tools:

- Git and GitLab → Self-hosted version control system
- Arch Linux and Ubuntu → Operating systems

Digital Addiction Tracker project app

ongoing, 2017–

Designing and developing the Android app and management website for the Digital Addiction Tracker project. The app implements a background service which monitors application usage, network availability, location and other aspects of phone usage in real time. Researchers can monitor multiple experiment participants and send them messages, receive feedback and generate useful data and statistics.

The app is being developed using Java 7 for Android 5.0 and upper phone devices. Used libraries and tools:

- RxJava 2 → Reactive programming
- RxFirebase2, RxBinding2, RxLocation, RxBroadcast → RxJava2 adapters for corresponding libraries
- RetroLambda → Backported Java 8 lambda functions
- StreamSupport → Backported Java 8 streaming library and optionals
- Jackson → JSON decoding

The web-based management interface is being developed with ES6 using Google Firebase for hosting and messaging. Used libraries and tools:

- React → Reactive user interface library
- Redux → State container
- React-Router → Declarative routing for React
- React-Bootstrap → Reusable front-end components for React
- Babel → ES6 compiler
- Webpack2 → Build tool for JavaScript
- Atom → Editor / IDE

Other tools:

- Bitbucket → Version control system and hosting
- Arch Linux → Operating system

FoodSMART project app

~9 months, 2015–2016

Designed and developed the Android app for the FoodSMART project. The app presents users with dish choices for canteens while displaying useful dietary information for the dishes. It features a simple recommendation mechanism based on user preferences for diet types and allergies. It also allows users to calculate the total calories of a selection of dishes for a complete meal. The app supports multiple canteens and can optionally use localisation to guess the current canteen.

The app was developed using Java 7 for Android 4.2 and upper phone devices. Used libraries and tools:

- RetroLambda → Backported Java 8 lambda functions
- StreamSupport → Backported Java 8 streaming library and optionals
- Dagger 2 → compile-time dependency injection library
- Greenrobot EventBus → Eventbus for Android
- ZXing-android-embedded → QR code decoding for Android
- Android-priority-jobqueue → asynchronous pooled job queue
- Jackson-jr → JSON decoding
- Invision → Web-based UI prototyping
- Git and GitHub → Version control system and hosting