www.fri.uni-lj.si/en | doctoral.studies@fri.uni-lj.si | +386 1 479 8123

Prospective Student Day

Doctoral Study Programme Computer and Information Science

University *of Ljubljana*
Faculty *of Computer and Information Science*

Why Become a Doctoral Student at FRI?

Our Successful Doctoral Students

University of Ljubljana
Faculty of Computer and Information Science

Asst. Prof. dr. Marinka Žitnik, 2015
Harvard University

dr. Nejc Škoberne, 2013
CEO & Co-founder of Genialis

dr. Mitja Trampuš, 2015
Google

dr. Miha Štajdohar, 2012
CTO & Co-founder of Genialis

dr. Jure Žbontar, 2016
Facebook

dr. Sanja Fidler, 2010
CEO of NVIDIA AI Reseach

Modern Facilities

University of Ljubljana
Faculty of Computer and Information Science

12 Computer Classrooms

19 Reseach Laboratories

Access to HPC RIVR – among Top 100 supercomputers (10 PetaFLOPS, 120.000 cores)

Research

University of Ljubljana
Faculty of Computer and Information Science

- Systems and networks
- Machine perception and multimedia
- Computational biology
- Software engineering and informatics
- Machine learning and artificial intelligence
- Theoretical computer science and mathematical methods

19
Laboratories

57
Mentors

https://fri.uni-lj.si/en/mentors

Doctoral thesis

https://repozitorij.uni-lj.si/Statistika.php

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- Semi-automatic reconstruction and documentation of software development methods, 2020
- Incremental matrix factorization for simultaneous learning from parallel data streams, 2019
- Scalable matrix factorization for data fusion, 2019
- Learning of text-level discourse parsing, 2019
- Emotion Recognition on Twitter Using Neural Networks, 2019
- Semantics-based automated essay evaluation, 2018
- Prediction of aircraft trajectories for air traffic control using machine learning approaches, 2018
- Compositional hierarchical model for music information retrieval, 2018
- Learning decision rules with evolutionary optimization, 2018
- Proactive risk management in information systems, 2018
- Multi-level monitoring and rule-based reasoning in the adaptation of time-critical cloud applications, 2018
- Low-rank matrix factorization in multiple kernel learning, 2018
- Indoor Localization Method Based on WiFi Signals and Building Layout Model, 2018
- Artificial intelligence methods for modelling tremor mechanisms, 2018
- Computational methodology for enhanced sensitivity analysis of gene regulatory networks, 2018
- Hint generation in programming tutors, 2018
- Counting small patterns in networks, 2018
- Monte Carlo Tree Search Strategies, 2018
- Finding dependencies in data with information-theoretic methods, 2017
- Adaptive Long-Term Ambulatory Electrocardiogram Morphology Delineation Using Orthogonal Transformations, 2017

Orange Data Mining

http://orange.biolab.si

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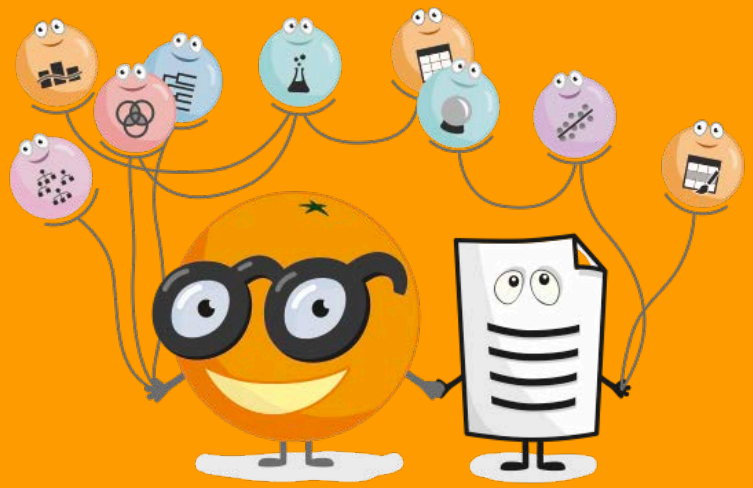
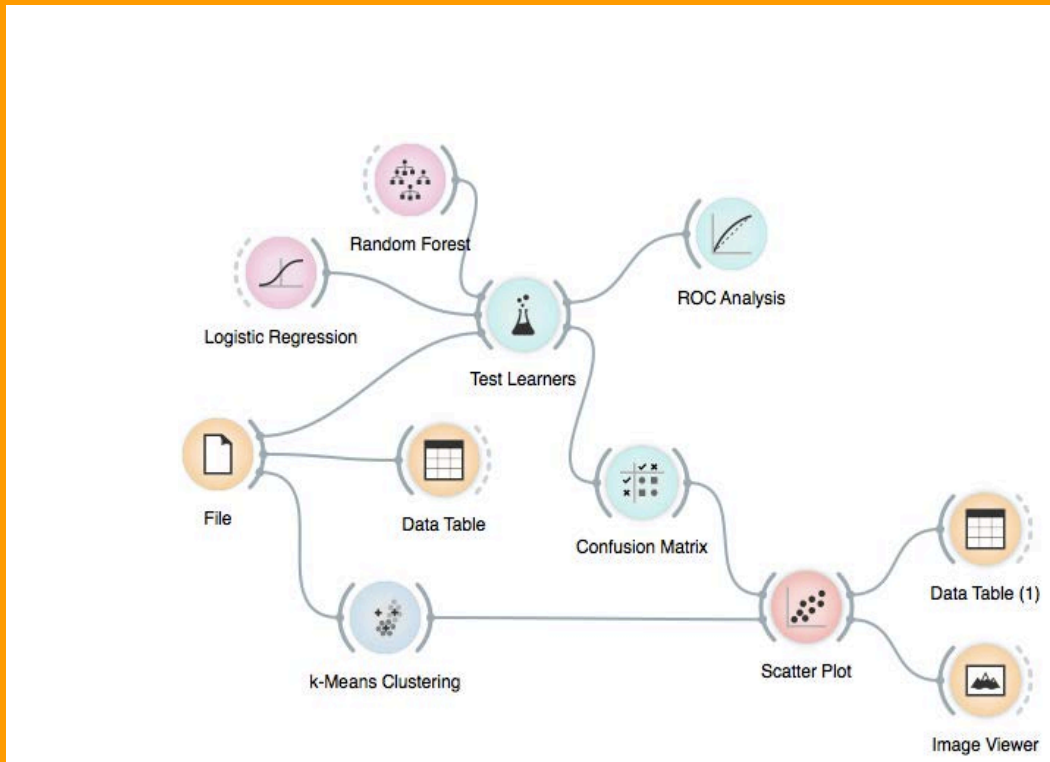
- **22,700** monthly downloads
- **19,800** Youtube subscribers
- **2,024,000** views on Youtube



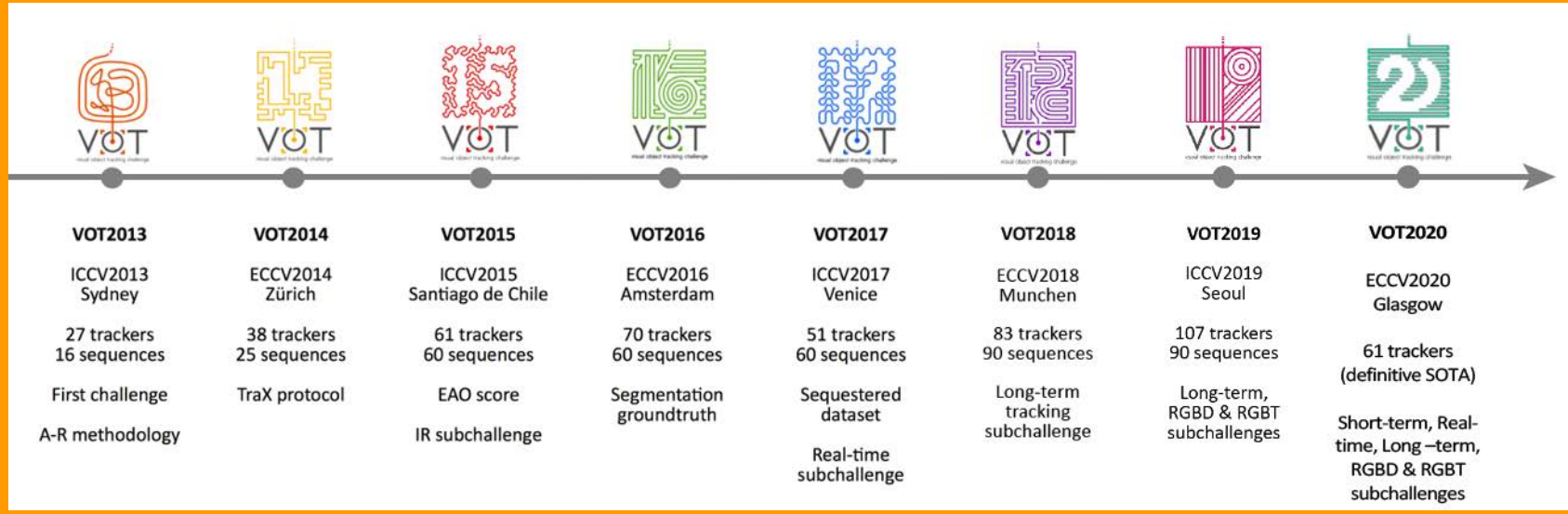


VOT – Visual Object Tracking initiative

University of Ljubljana
Faculty of Computer and Information Science

http://www.votchallenge.net

- **Running since 2013**
- **VOT2020:** 5 specialized subchallenges
- **Workshop papers with over 100 coauthors**
- **VOT publications cited:** >1000 (Research Gate), >2500 (Google Scholar)



Deep-learning-based Computer Vision

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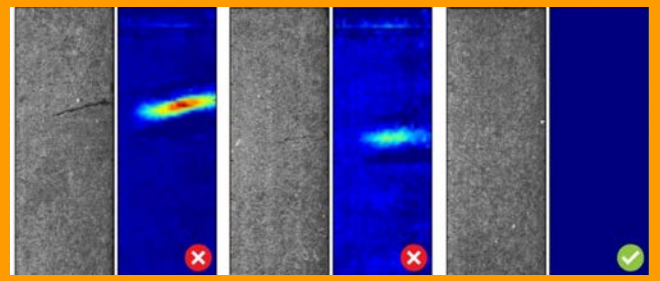
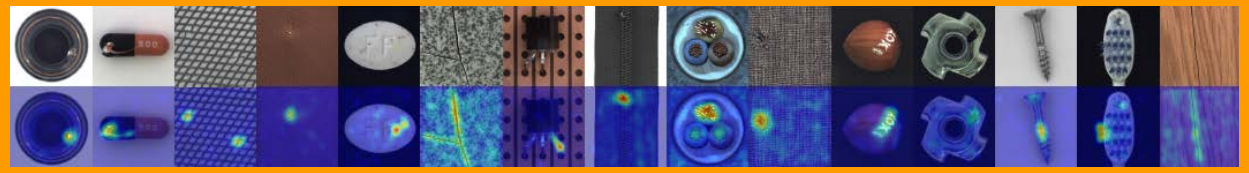
- Data-driven learning-based machine vision
- Segmentation-based surface anomaly detection
- From supervised to unsupervised learning
- Vision for robotics
- Image enhancement
- Visual tracking
- Biometrics:
  - *Sclera-based Identity Recognition*
  - *Ear Biometrics*
  - *De-Identification*
  - *Soft-Biometric Privacy Enhancement*



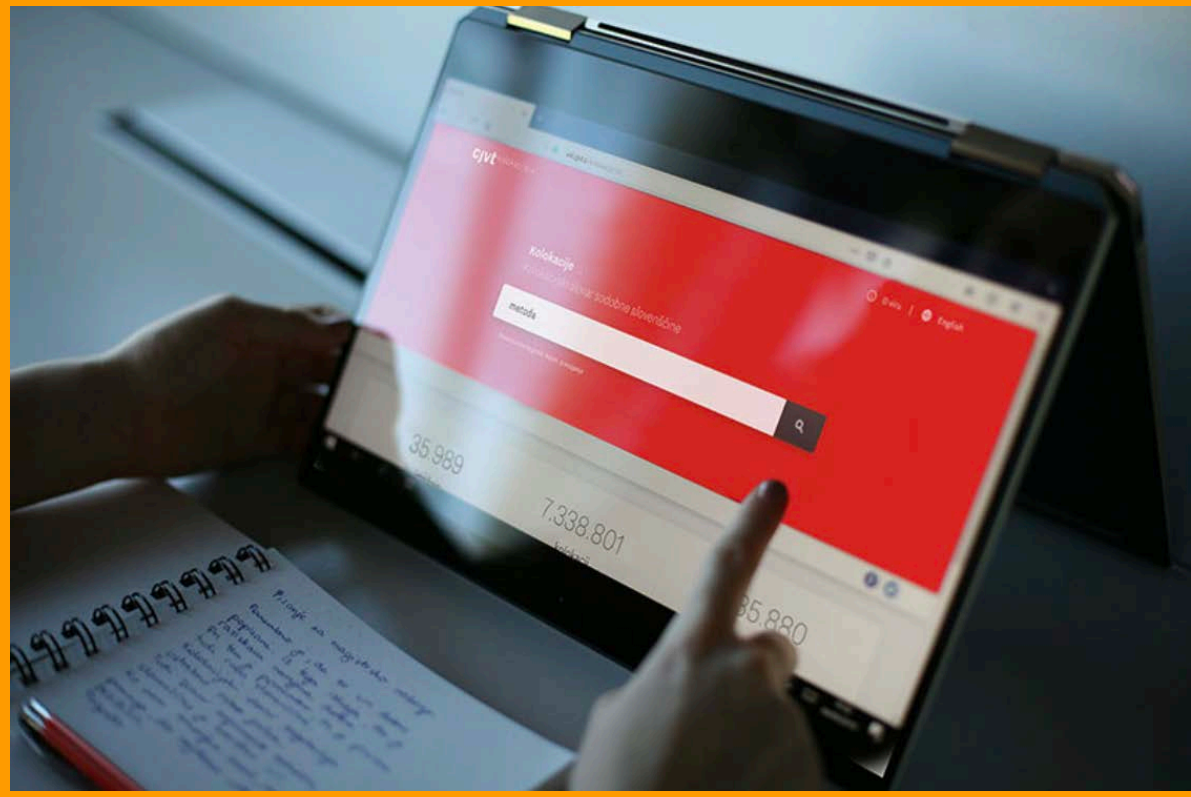


Development of Slovene in a Digital Environment:
Language Resources and Technologies

University of Ljubljana
Faculty of Computer and Information Science

https://www.cjvt.si/rsdo

- Computational tools and services in the field of language technologies for Slovene
- Natural language Smart assitants
- Open license of software and databases
- Speech recognition
- Speech transcription
- Machine translation
- Terminology extraction
- Terminology portal



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Study Programme

1st Year

2nd Year

3rd Year

4th Year

Elective Courses

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2021/2022

- Incremental Learning from Data Streams
- Mathematics for Machine Learning
- Modern Cryptography and Computer Security
- Predictive Analytics for Structured Data
- Advanced Topics in Network Science
- Contemporary Approaches to Algorithm Design
- Heterogeneous Computing Platforms
- Approximate Arithmetic for Media Processing and (C)NNs

2022/2023

- Information System Integration Methods
- Advanced Algorithms for Search and Planning
- Machine Learning for Natural Language Processing
- Deep Learning for Computer Vision
- Selected Topics in Analysis of Sound Signals
- Selected Topics from Computer Graphics and Visualization
- Security Studies and Ethical Hacking

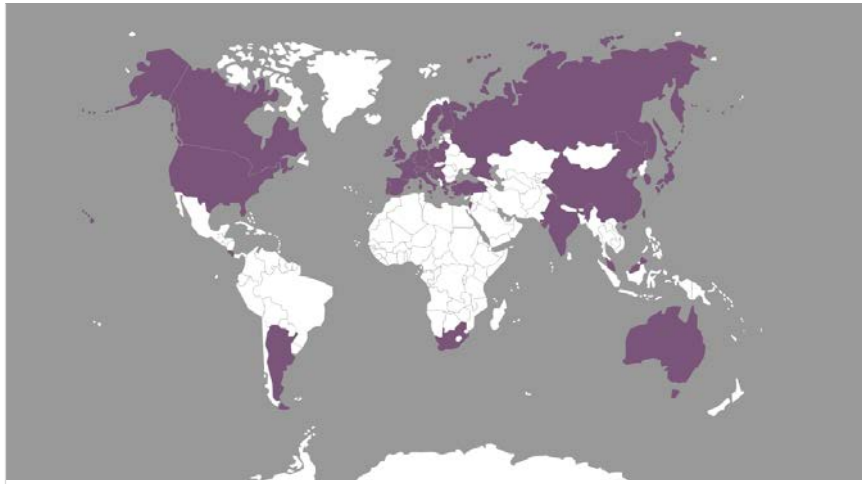
International Collaborations

University of Ljubljana
Faculty of Computer and Information Science

Collaborations with world-renowned institutions:

- **Joint Research Centre of European Commission (Italy)** – doctoral partnership on cybersecurity and biometrics;
- **The European Organization for Nuclear Research – CERN (Switzerland);**
- **Chinese Academy of Sciences (China)** – joint Chinese-Slovenian virtual laboratory for high performance computing;
- **Kyungpook National University (South Korea)** – joint research in computer vision and wireless computing and a double degree study;
- **University College London (UK)** – joint research in bioinformatics and mobile computing;
- **Baylor College of Medicine (USA)** – joint research in bioinformatics;
- **University of Birmingham (UK)** – joint research in computer vision and robotics;
- **Czech Technical University in Prague (Czech republic)** – joint research in computer vision;
- **Alpe-Adria University Klagenfurt (Austria)** – joint research in computer compilers and algorithmics;
- **University of Belgrade (Serbia)** – joint research in sport statistics and computational linguistics;
- **KAUST – King Abdullah University of Science and Technology (Saudi Arabia)** – computer graphics and visualization technology for depicting the life forms from atoms to organisms

Internal fund for research and study visits abroad!



182

Total number of collaborating institutions


Open to
Foreign Students

University of Ljubljana
Faculty of Computer and Information Science

About Slovenia

Slovenia is one of the greenest European countries. Mediterranean Coast, snowy mountain tops of Julian Alps or thermal spa resorts in the Eastern part, famous for its wines, are all just an hour's drive from Ljubljana, the lively and picturesque capital of Slovenia.

Study in Ljubljana, discover Slovenia

Student Life in Ljubljana

- Peaceful and safe city
- Low living costs:
  - 400–500€/month
  - Subsidized lunch, transportation
  - Dorms for exchange students
- Tech events for students

How to Apply for the Doctoral Programme?

University of Ljubljana
Faculty of Computer and Information Science

Apply Online

Apply at eVŠ Portal
http://portal.evs.gov.si/prijava

Master or pre-bologna equivalent study programme

Application Deadline

1 June 2021
Enrolment in September 2021

Application Enclosures

- a well-structured CV
- a certified copy of your bachelor or master's degree
- a GPA certificate of exams and tutorials
- a motivation letter
- 2 recommendation letters
- mentors's acceptance statement
- short conceptual design of the research work

Tuition Fees

4200 € for 1st and 2nd year

3000 € for 3rd and 4th year

Contact

Student Affairs

E: doctoral.studies@fri.uni-lj.si
T: +386 1 479 8123

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Faculty of Computer and Information Science

Assistance to International Students by International Office

Assistance in applying for:

- study programme online via eVŠ platform
- visa, residence permit
- JRC call

Advising on:

- documentation for recognition of education
- finding an apartment in Ljubljana
- basic information about living in Slovenia

Contact Information

Ms. Vesna Gračner
E: international.office@fri.uni-lj.si
T: +386 1 479 8249

Open Positions and Scholarships

University of Ljubljana
Faculty of Computer and Information Science

https://fri.uni-lj.si/en/career-faculty

Researcher positions

- **QUIERO – Quantitative MR-based imaging of physical biomarkers**
  Info: https://www.fri.uni-lj.si/sl/projekti/1600,
  https://quiero-project.eu/
  Contact: aleksander.sadikov@fri.uni-lj.si
- **Use of computer vision in biometry with emphasis on detecting fakes, e. g. deep fakes.**
  Contacts: son.vu@ensea.fr, peter.peer@fri.uni-lj.si
- **IoT security and light solutions in machine learning for anomaly detection**
  Contact: denis.trcek@fri.uni-lj.si

Young researchers

Artificial Intelligence
Coordinator: blaz.zupan@fri.uni-lj.si

Bayesian Statistics and Machine Learning
Coordinator: erik.strumbelj@fri.uni-lj.si

KAUST

University of Ljubljana
Faculty of Computer and Information Science

جامعة الملك عبدالله للعلوم والتقنية
King Abdullah University of Science and Technology

VCC VISUAL COMPUTING CENTER

Computer graphics and visualization

Biological processes and data on micro/nano level

Asst. prof. dr. Ciril Bohak – ciril.bohak@fri.uni-lj.si

- Reconstruction of electron microscopy data:
  e.g. cryo-ET.
- Segmentation and analysis of microscopy data:
  e.g. structure, background segmentation.
- (Procedural) Modeling of biological systems on a molecular level:
  e.g. viruses, bacteria, cell organelles.
- Simulating parts of electron microscope using
  deep learning models: e.g. Simulating noise, electron beam, sensors.
- Deep learning methods in computer graphics:
  e.g. end-to-end differentiable rendering of volumetric data.

https://cemse.kaust.edu.sa/vcc

Joint Research Centre (JRC)

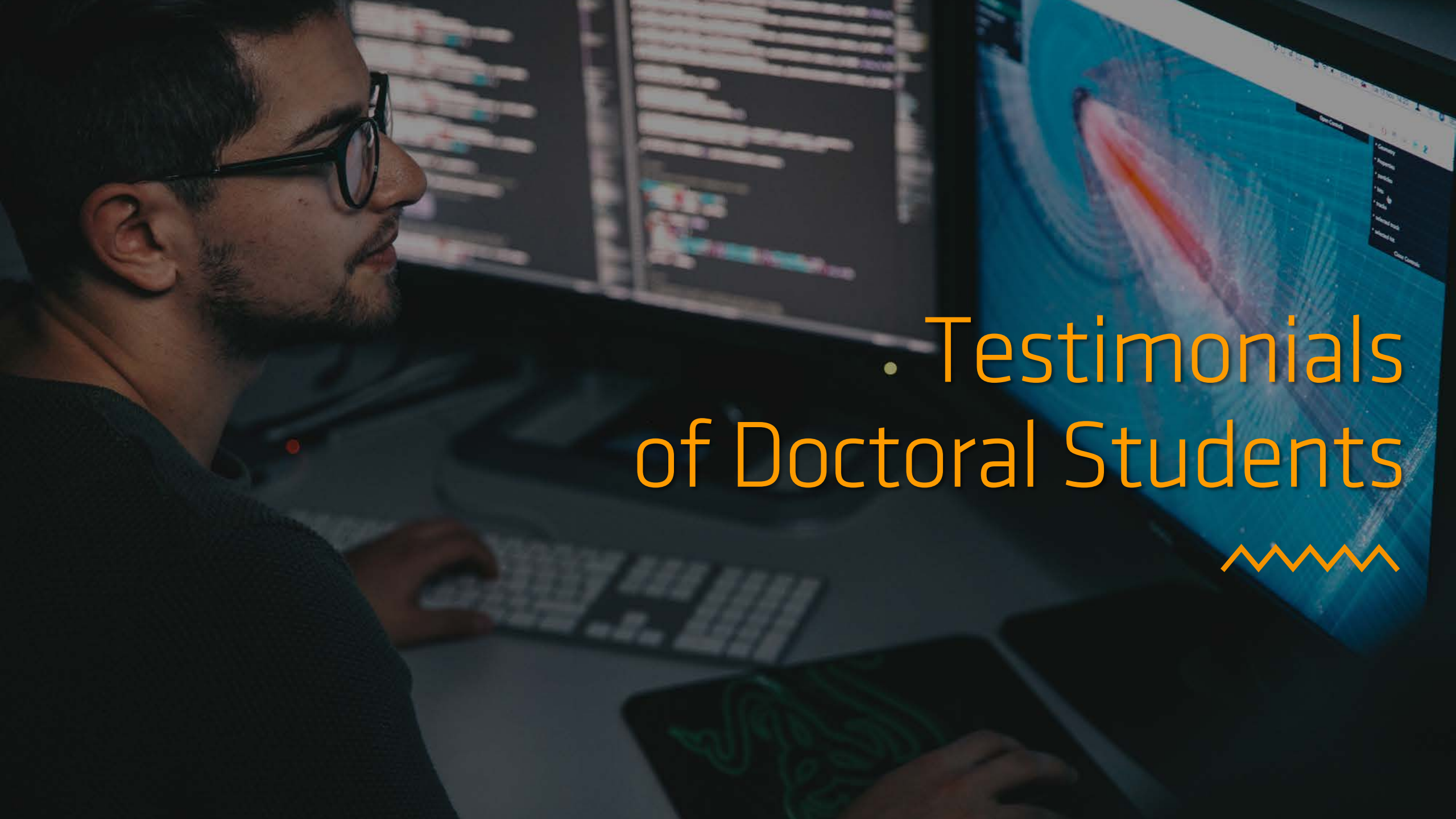
University of Ljubljana
Faculty of Computer and Information Science

European Commission, DG Joint Research Centre, Directorate E - Space, Security and Migration.
Unit E.3 - Cyber & Digital Citizens' Security, Via Enrico Fermi 2749, 21027 Ispra (VA), ITALY

JRC employs over 2700 researchers. The JRC E3 unit employs 42 researchers in three groups that cover cyber security, transport security and law enforcement technology. Research for EU strategy and policy advisors. Researcher position, five-year fixed contract, 2 years employed at FRI, 1–3 years employed at JRC. Doctoral supervision by advisor from FRI and co-advisor from JRC.

Machine learning for Internet of Things

Machine learning for image and biometrical data analysis



Testimonials of Doctoral Students

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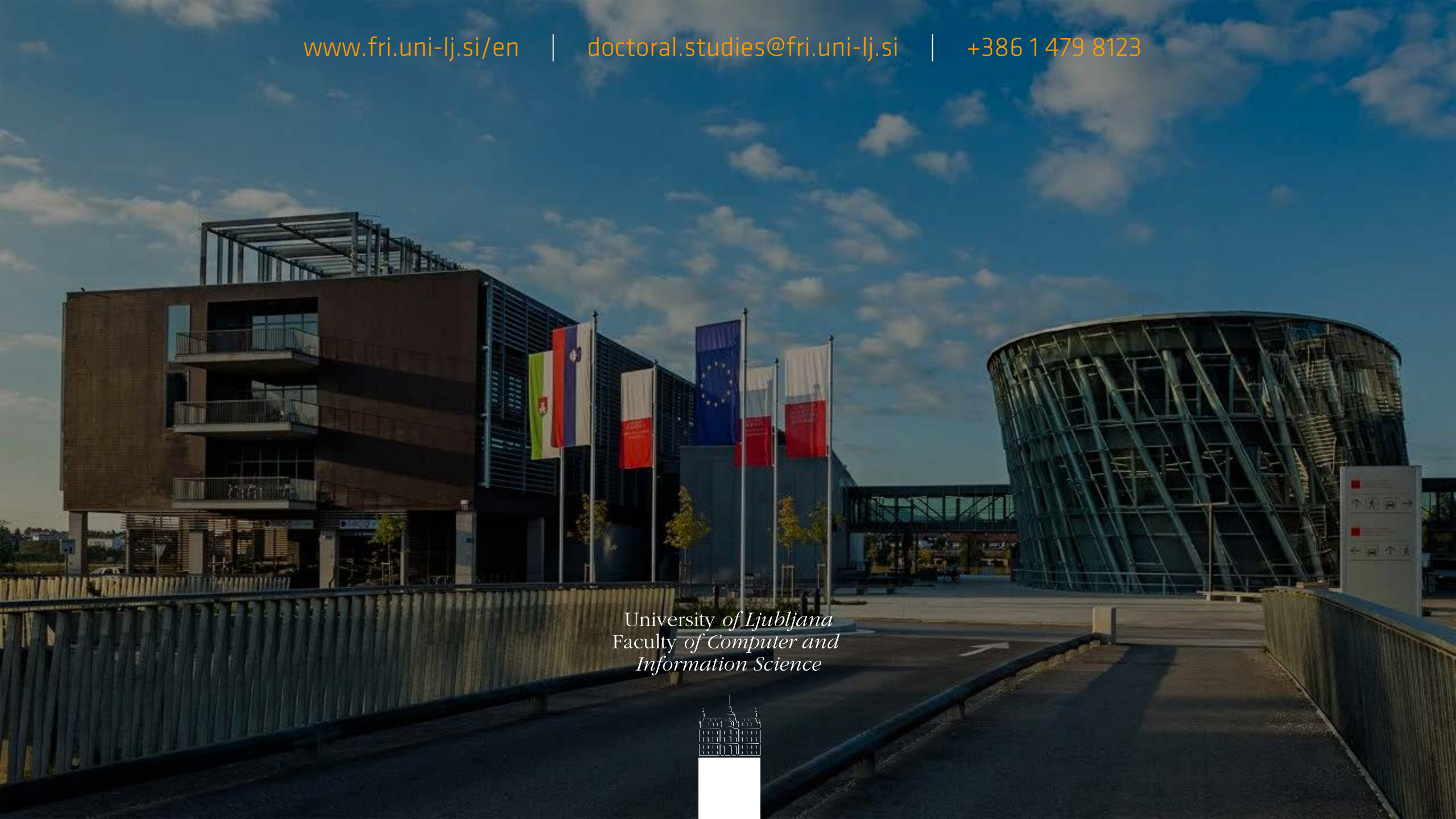

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Questions
& Answers