



International Evaluation Panel on-site visit at CTU FEE

Prague,
June 24, 2025



FEE's impact on society through its R&D&I

Mission – educate **top professionals**; develop **research excellence** in **EE & CS** with overlaps into **natural, medical, economic sciences** and **humanities**; apply **innovative technologies**; support **community, society, government**;

Vision – to be an **internationally-recognized** institution

Strategic plan 2021-25



Strategic long-term goals ..

Role of modern university

1. Ensure **excellence** in **education**, [slide 5-7](#)
2. Foster **scientific excellence** and **interdisciplinary** collaboration, [9, 10](#)
3. Promote **innovation** and **technology transfer**, [12](#)
4. Support **community, society, government**, [11, 14](#)

Supportive, “inward-oriented”

5. Quality of **faculty management** and **human resource policy**, [4, 13](#)
6. **Comfortable environment** for study and work, [8](#)
7. **Open and clear** public relations, [14](#)

.. are driven by ..

.. FEE key values

People come first

Quality in all roles

Collaboration - compete with world

Openness: world/new disciplines

Strength: FEE <-> CTU

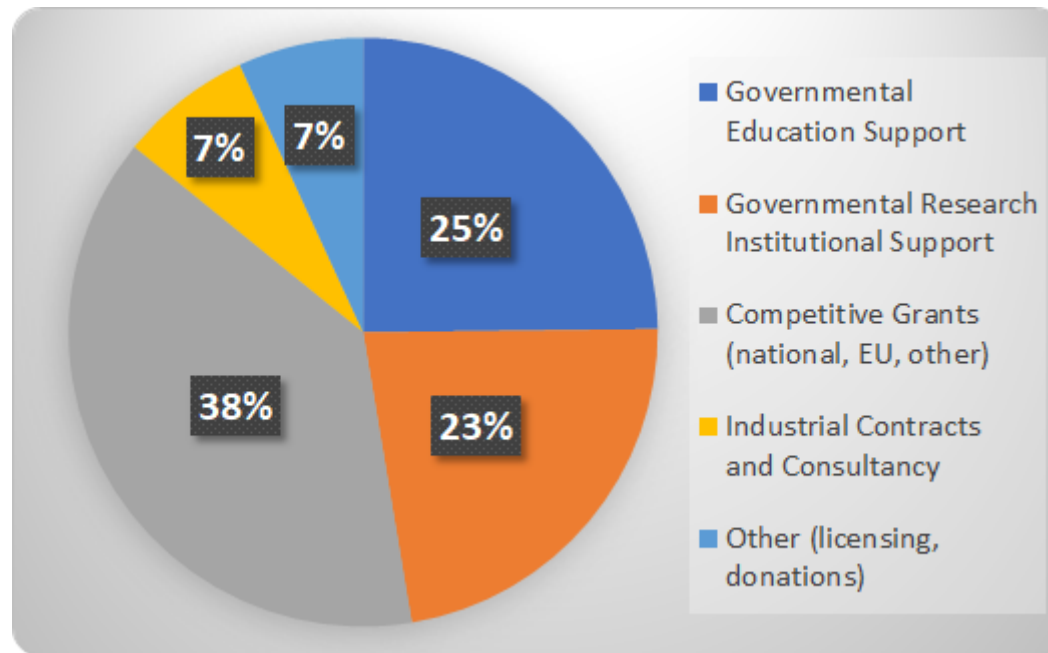
Decisions: consensus & transparency

Actions: ethical dimensions

Respect: sustainable development, societal needs; protect nature/planet

Sources of Income (annual report 2024)

FEE budget: **52.4** mil. EUR, ~**1/6** of **CTU** budget



Competitive
Grants
38 %

Governmental Support
Education & Research
25 + 23 = 48 %



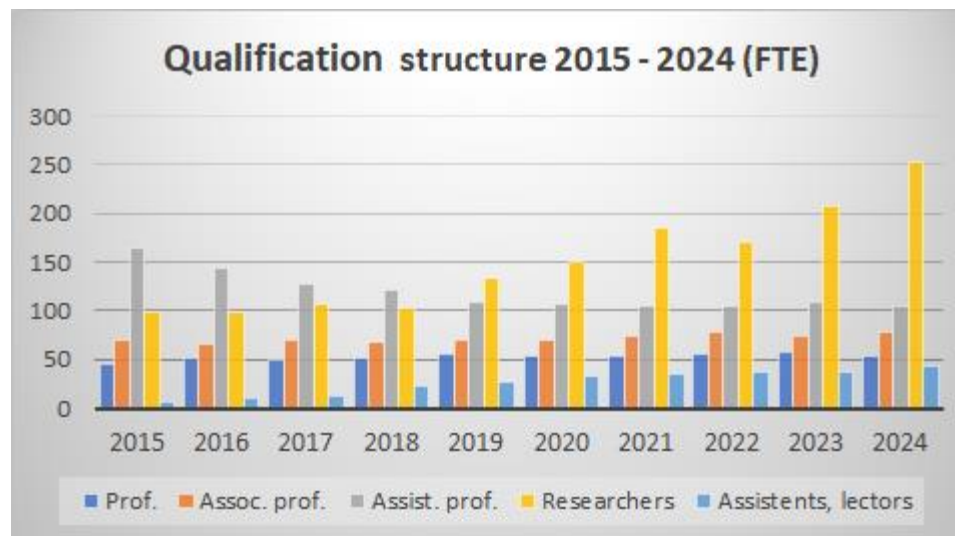
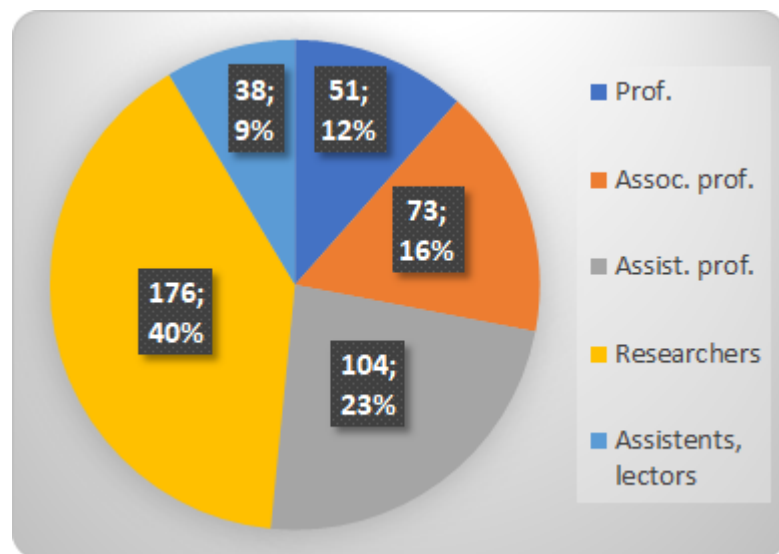
Faculty location in Dejvice, Prague 6



Faculty location, baroque buildings, at Charles' square, Prague 2

Human Resources (annual report 2024)

Academic + R&D staff: **448 (FTE)**



Foreign employees

2024: 173, 28 %

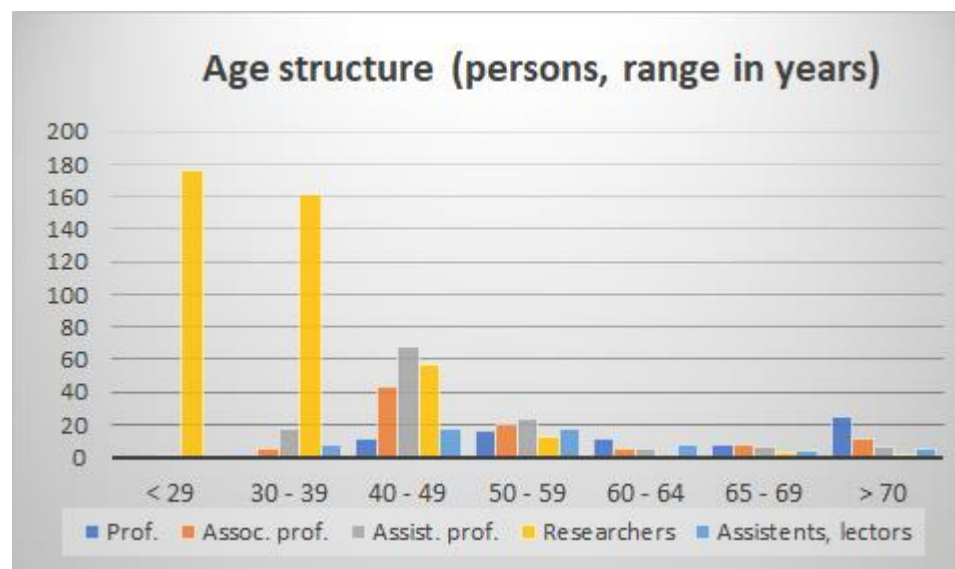
99 FTE, 22 %

2019: 90, 18 %

58 FTE, 15 %

Men/Women, 608 persons

Professors	62 (97 %)	2 (3 %)
Assoc. prof.	80 (96 %)	3 (4 %)
Assist. prof.	118 (91 %)	12 (9 %)
Researchers	234 (86 %)	38 (14 %)
Assistants, lectors	48 (81 %)	11 (19 %)
Total	542 (91 %)	66 (9 %)



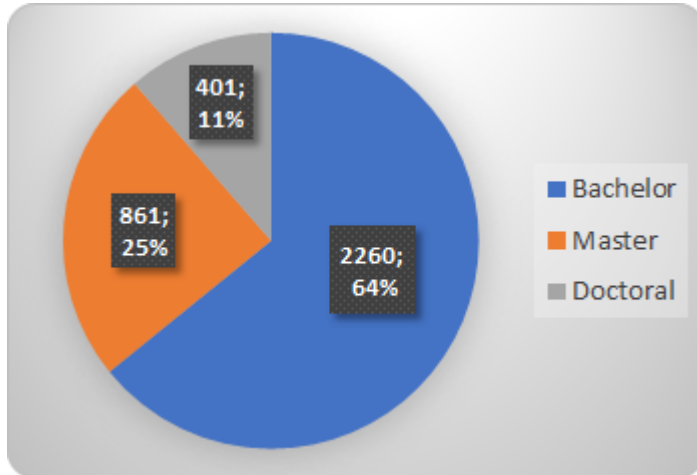
Career advancement foreign employees

assoc. prof.

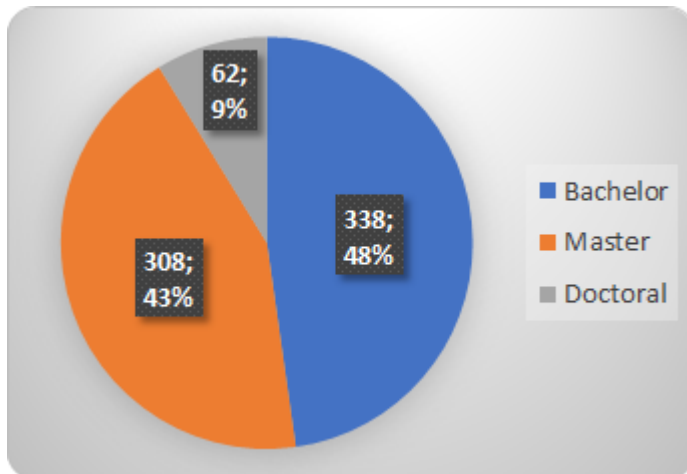
S. M. G. Dantas, Ph.D.	04/2025
A. Cammarata, PhD.	05/2023
G. Tolias, Ph.D.	12/2022
K. Hengster-Movric, Ph.D.	02/2020

Human Resources (annual report 2024)

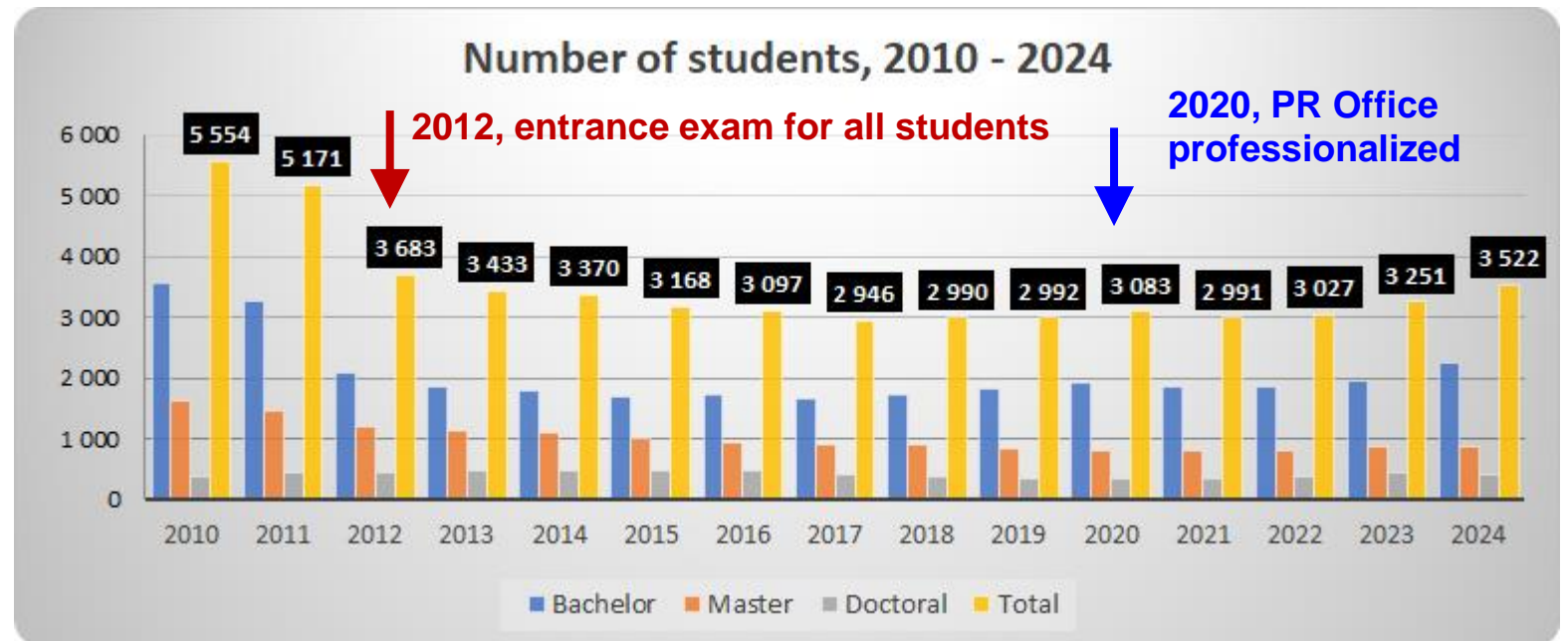
Students: **3 522**



Graduates: **646**



The number of students and graduates **increased** during 2021-2024 (faster than demographic data)



Study Programs (Bc 3 yrs, MSc 2 yrs, PhD 4 yrs) in all research areas

6 Bachelor + Master

- Electronics and Communication (Bc: Cz, MSc: Cz, En)
- Cybernetics and Robotics (Bc: Cz, MSc: Cz, En)
- Electrical Engineering, Power Engineering and Management (En, MSc.)
- Open Informatics (Bc: Cz, MSc: Cz, En)
- Open Electronic Systems (Bc: Cz, MSc: Cz, En)
- Medical Electronics and Bioinformatics (Bc: Cz, MSc: Cz, En)

2 Bachelor only

- Electrical Engineering and Computer Science (En)
- Software Engineering and Technology (Cz)

2 Master only

- Intelligent Buildings (Cz)
- Aviation and Cosmonautics (Cz, En)

6(8) students/teacher (FTE)

10 Doctoral (Cz, En):

- Aeronautical and Space Engineering
- Acoustics (joint with FCE + FME)
- Applied Physics
- Bioengineering
- Computer Science
- Cybernetics and Robotics
- Economics of Energy and Electrical Engineering
- Electrical Engineering and Communications
- History of Science and Engineering
- Mathematical Engineering



2.8 PhD students/supervisor

PhD Study

- We **simplified** the study rules (2022: credit -> **non-credit** system)
- **Ombudsperson** established in 2024
- **PhD Survey** (80 questions) 04/2025
(-> improve: info on study rules & use of IT systems, well-being, income)
- **“The Supervisor Standard”** & **“PhD Guide ..”** are being prepared
- We **follow** the **doctoral income**, min. EUR ~1000 as of 09/25; avg. EUR 1850 brutto)

Doctoral Programme Statistics

PhD students / year	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Accepted	81	74	68	75	84	66	100	64	78	92
Accepted from FEE graduates	59	53	39	52	49	39	54	26	35	32
Accepted outside of FEE	22	21	29	23	35	27	46	38	43	60
Studying	471	467	397	377	350	353	319	356	436	401
PhD / (Bc + Msc + PhD) %	14.9	15.1	13.5	12.6	11.7	11.5	11.0	12.2	13.4	11.4

MEP 2020 recommendation:

"The duration of PhDs 4 year is a must."

**More PhD students totally
& more accepted outside of FEE**

60/92 ~ 65 % (2024)

35/84 ~ 42 % (2019)

22/81 ~ 27 % (2015)

~ 25% foreign students
(no tuition fee)

PhD theses submitted sooner/later then 5 years

Year	2015	2016	2017	2018	2019	avg. 2015-19	2020	2021	2022	2023	2024	avg. 2020-24
< 5 yrs.	24%	23%	25%	20%	24%	23%	23%	31%	26%	48%	24%	30%
> 5 yrs.	76%	77%	75%	80%	70%	77%	76%	68%	74%	51%	76%	70%
Total	49	44	65	49	47	51	34	38	27	35	62	39

Problem identified
2015-19:
**Most students
submit their thesis
after 6 years**

**Incentives to shorten thesis
submission period**

2020-24:

- Administr., SEC: 7 -> 6 yrs
- Dean's Prize: submission < 5 yrs
- Financial: supervisor & dept.



Student Voluntary Activities & Projects

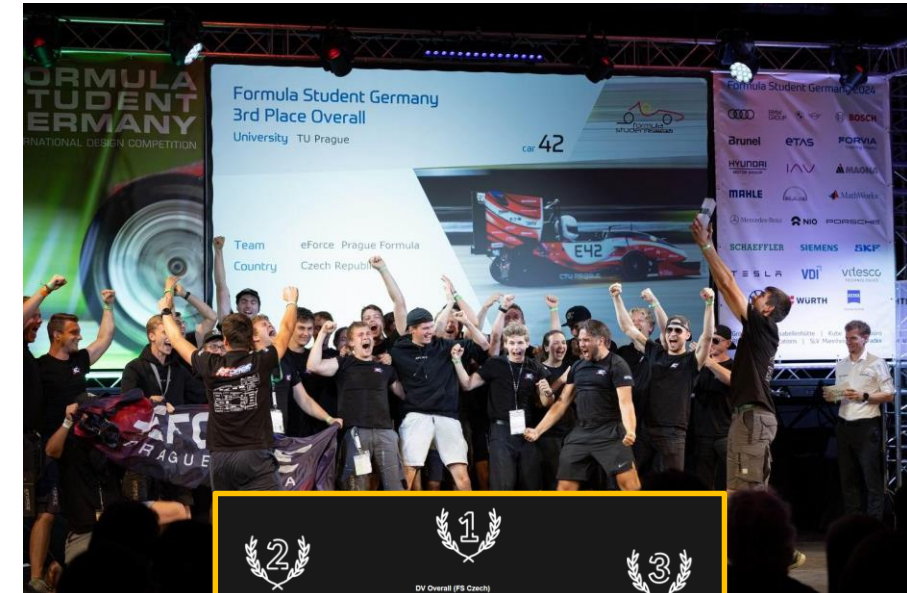
wITches

girl-students helping children to understand IT



eForce Prague Formula (now mainly autonomous)

student team participating in international Formula Student competition since 2010, details and achievements [here](#)



2	1	3
DV Trackdrive (FS Czech) DV Acceleration (FS Czech) DV Cool & Manufacturing (FSAE Italy) DV Engineering design (FSAE Italy) Efficiency (FSAE Italy)	DV Overall (FS Czech) DV Overall (FSAE Italy) DV + EV Overall (FSAE Italy) DV Autorsae (FS Czech) DV Skidpad (FS Czech) DV Engineering design (FS Czech) DV Autorsae (FSAE Italy) DV Skidpad (FSAE Italy) DV Trackdrive (FSAE Italy) DV Acceleration (FSAE Italy)	Overall (FS Germany) Engineering design (FS Germany) Efficiency (FS Germany) Business plan (FS Czech) Engineering design (FSAE Italy)

The CTU eForce (Prague Formula) team took **3rd place overall** (and 3rd in the Engineering Design Event category) at the **Formula Student Germany (FSG)** competition held at the legendary **Hockenheimring** in Germany, **August 18–24, 2024**

R&D&I in a nutshell (annual report 2024)

- **17** [departments](#), **200+** supervisors, **30+** established large [scientific teams](#),
- **540+** [framework topics](#) for phd students
- R&D in [electrical engineering](#) (EE) and [computer science](#) (CS)
- **248** grant projects (CZK 446M/EUR 17.8M), commercial **contracts** (CZK 144M/EUR 5.8M)
- **High-quality** publication standards (IF journals Q1/Q2, conferences CORE A*, A)
- **National/International collaborations** (projects, common teams, internships)
- **Prizes & Awards & Recognitions** (individual, team)
- **Results commercialized** (patent licences sold, first spin-offs established)



#151-250



prof. Martin Saska invited
by the prezident Petr Pavel
26.9.2024

~**1/3** scientific results of the CTU¹⁾

Publications: 26 % in total

32 % author's shares incl.

Citations²⁾: 37 % author's shares incl.

Patents: 66 % / 41 %, US+Jap+EU / total



¹⁾ According to V3S (considering authors' shares), March 2025, ²⁾ heterocitations

Research Projects (2019-2023)

- 414 public funded; in 230 FEE main coordinator (CZK 1,874 M / EUR 73.9M)
- 450 contracted (CZK 357.4M / EUR 14.1M)

National funded Ex. of inter-university/faculty cooperation

[Research Center for Informatics \(RCI\)](#), CZK 610M/EUR 24.2M

3 CTU faculties (FEE, FIT, FNSPE) + Charles University FMF
AI & CS theory, cybersecurity, hp computing, bioinfor., robotics

[Centre of Advanced Photovoltaic \(CEP\)](#), CZK 151M/EUR 6M
(2016-23), 2 CTU faculties (FEE, FCE) + 1 institute (UCEEB)
academics, technologists, system engineers, architects

[Future Electronics for Industry 4.0 and Medical 4.0 \(FEIM\)](#)

CZK 461M/EUR 18.3M, FEE - main coordinator

4 universities (CTU, VUT, WBU, UP) + 22 industrial partners
smart technologies for structural electronics, sensors, embedded systems
including interfaces for data transmission and processing

Contracted

TOYOTA: Computer vision and AI, [TRACE Lab](#), EUR 3.5M
since 2003, headed by prof. J. Matas, cover mostly personal costs
Computer vision, assistive driving, general AI and ML research
in Toyota activities (autonomous vehicles, robotics, smart cities)

[DARPA Subterranean Challenge](#), 2018-21, USD 2.7M
development of autonomous technologies for underground
operations (tunnel, urban underground, natural cave networks)
wheeled, walking, tracked and flying robots; winning USD 200k (2019),
2nd place + 500k (2020), additional funding 1.2M (2021)

[VRUT system development \(Virtual Reality Universal Toolkit\)](#)

CZK 32.2M/EUR 1.3M, funded by Skoda Auto
sw package for interactive and photoreal. rendering of 3D models of cars



Recognition by the Research Community (2019-2023)

MEP 2020 recommendation:

Set incentives for those who are not yet internationally engaged.



R&D&I Awards, team & individual

[DARPA SubTerranean Challenge](#), 2019-2021

2x 1st place among self-funded teams (3rd overall)
teams of prof. Svoboda, prof. Faigl, prof. Saska, 1x 2nd
overall in Final

Robotic [MBZIRC Grand Challenge 2020](#)

1st place, team of prof. Saska

[IEEE AP-S Edward Altshuler Prize Paper Award
2023](#), prof. M. Čapek

[The Global Undergraduate Awards 2023](#)

Bc. D. Burešová

Editorial Board, international journals

prof. Matas, Int. Journal of Computer Science (Ed.-in-Chief, **D1**)

prof. Chum, Int. journal of Computer Vision (**D1**)

prof. Faigl, IEEE Trans. on Automation Science and Eng. (**D1**)

prof. Havlena, Control Engineering Practice (**D1**)

prof. Haasz, Measurement (**Q1**)

Lectures by foreign scientists at FEE

prof. J. Collomosse, Adobe Research, 2023

prof. P. Michiardi, EURECOM, France, 2023

Dr. A. Shrestha, German Aerospace Center, Germany, 2022

Dr. W. Magnes, Space Research Institute (IWF) of the Austrian
Academy of Sciences - vice director, Austria, 2020

Invited lectures of FEE staff at foreign institutions

prof. Matas, VISIGRAPP 2019

Dr. Janošek, SANSA Space Science, Hermanus, Pretoria, 2022

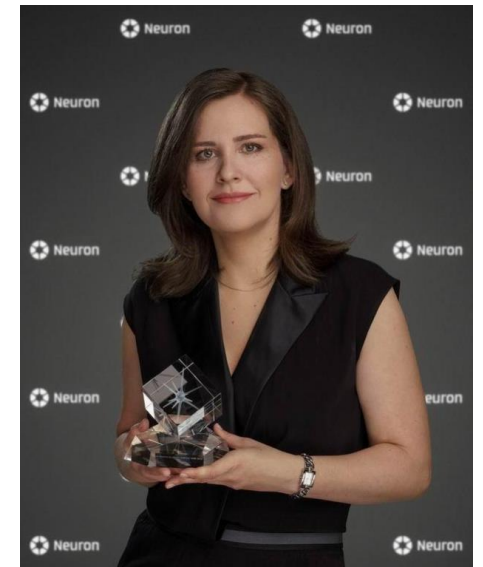
Dr. Knap, Lancaster University, 2021

assoc. prof. Krajník, Autonomus Systems Lab., ETH Zurich, 2019

prof. Sykora, Universidad Distrital Francisco José de Caldas, Bogotá,
2019

[“CTU FEE Grant: PhD Study with Distinguished
External Co-Supervisor”](#) aims:

- to promote quality phd supervision,
- to establish a relationship of
student/supervisor/department with an
international expert



Dr. Zuzana Kúkelová
recipient of Neuron Prize
17.10.2023

Technology Transfer & Commercialisation

MEP 2020 recommendation:

Is basic and applied research well balanced?

Necessary to perform optimum exploitation strategy



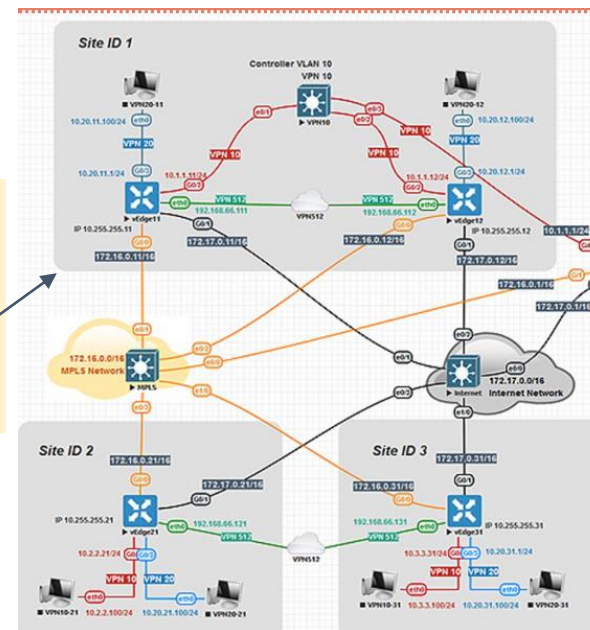
Technology Transfer Team (TTT) - established 2022

- managed by **Vice-dean for Cooperation with Industry & Commercialisation** (position introduced 2021)
-> prof. Jan Vobecký (2007-2025 with ABB Switzerland Ltd. and Hitachi Energy CZ)
- cooperates closely with Rectorates's Technology Transfer and Fundraising Office (TTFO)
- provides support in obtaining & licencing IP, contracting, market research
- establishing spin-off & start-up companies in 2 to 6 weeks - guidance through legal procedure
- motivates academics by providing **Proof of Concept MiniGrants** (EUR up to 3,000) supporting commercialisation of results

Spin-out:
Multi Robotic Systems

Spin-offs:
eyedea (AI for Visual Recognition)
ADVAMAT (Advanced Coatings)
Helhest (Tactical Ground Robot)

TTT Proof of Concept MiniGrants:
Virtual lab for integration of servers, firewalls, etc. (digital twins, resilience, disaster mgmt., etc.)



Quality Evaluation and Management/Support of R&D&I

Evaluation

- **Faculty criteria for evaluation of R&D results** ([KVVC](#), promoting high-quality results, credits-based system)
- **Success and efficiency statistics (rankings) of phd supervisors** (implemented in CTU IS according to the best practice at FEE)

Management tools/measures

Faculty staff, supervisors

- **Financial motivation** system for excellent research outputs
- **Bonifications** for **early** phd thesis **submissions** (< 4/5 yrs: financial, credits in KVVC)

Doctoral students

- [Dean's Award for Excellent PhD thesis](#) (< 5 years)
- [CTU FEE Grant: PhD Study with a Distinguished Co-Supervisor](#) (2021, 9 grants awarded, Jimp results increased)
- [Vice-Dean's Award for PhD-authored Papers in Top Journals](#) (2021, 2x Jimp Q1 paper published)



Applied to scientific
branches/departments
with development potencial
(Q4 according to KVVC)

Career development

- **CTU: Career code**
FEE: dean's directive & methodology for academic staff evaluation
- **annual evaluation** by the department chief
- **5-year** periodical **attestation** by the faculty committee

Popularization of Technical Education, Science and R&D&I

Public Relation Office (PRO) - professionalized 2021

- **new:** head, communication strategy & website; press releases, media monitoring & training, ..
- **improved support** to the departments; **active involvement** of hundreds of researches and students
- 2024: **highest number** of media outputs of all faculties (28% share)

Examples of PR activities and events:

- Olympiads for **secondary schools**: [Robo Competition](#), [Electrotechnical Olympiad](#)
- **Adventure Pedagogy** - Summer Camps: (**primary & high school** students): [CTU Children's University](#), [FEL Camp](#)
- Events for **general public**: participation in [Night of Scientists](#), [Comic-Con](#), [ABC Festival](#), [Science Fair](#) and [ScienceFest](#)
- **Popularizing** science and technology for/by **women** and **girls**: [Become a Woman Scientist](#) (with FNSFE), [wITches](#)
- Afternoon clubs: [ECT22](#) (EE basics for **pupils**), [Radio club](#)



MEP 2020 recommendation:
"Follow the example of sensor online courses."

[The Introduction to Security](#) course by AIC
free, 14-week, 2000+ participants since 2017,
1500+ in 2024 (Massive Open Online Course)

2019-2023: 7 700+ media appearances
in TV, broadcast, press, internet

2014-2018: 2 500+

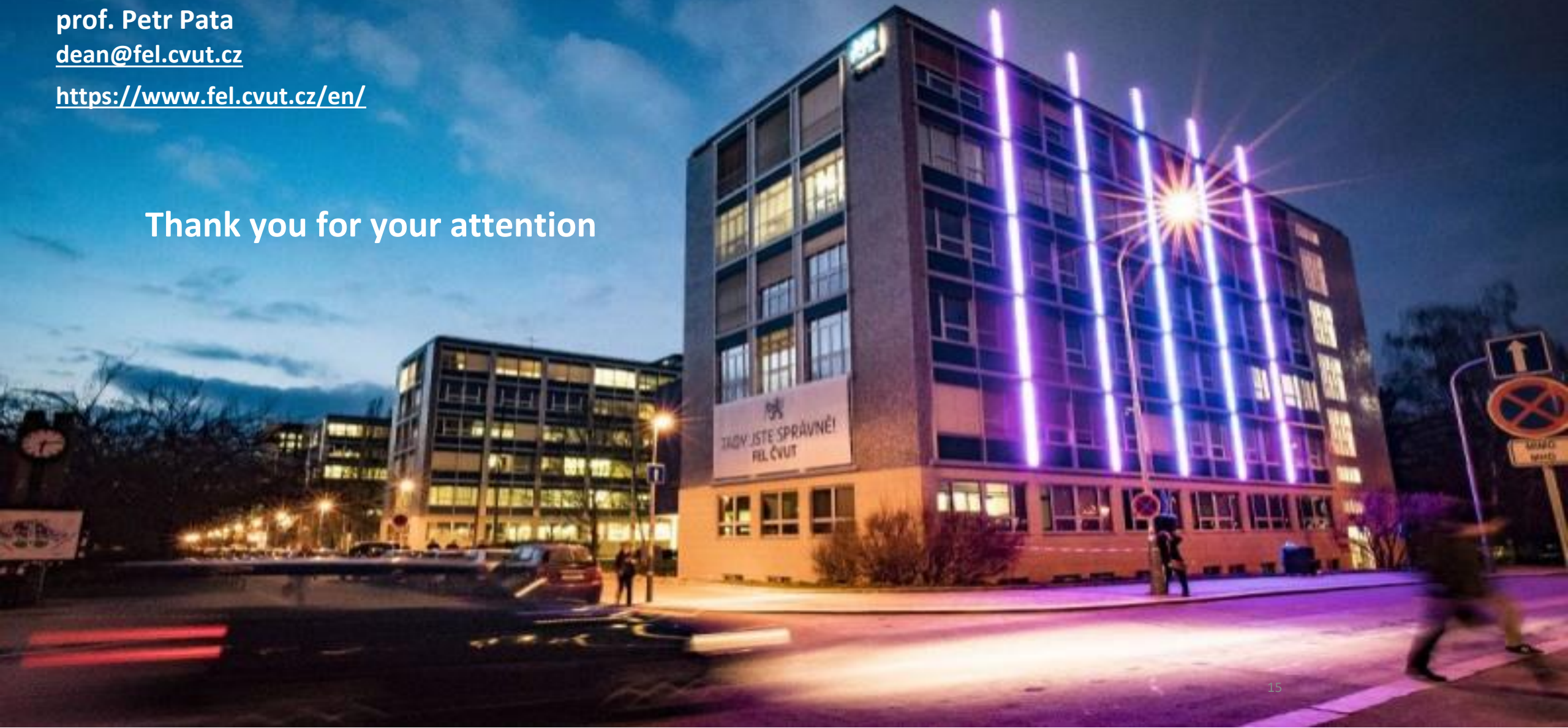




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<https://www.fel.cvut.cz/en/>

Thank you for your attention



Appendix

SWOT 2020 + changes/improvement during 2020-24

Strengths	Weaknesses
<ul style="list-style-type: none">• Experienced researchers and supervisors of doctoral students• Established research teams able to acquire external funds (projects, contracts)• High publication standards accepted by the community (IF journals, CORE A, A* conferences)• Overall good scientific performance• Carrier code established• Annual and 5-year periodical assessment of academic employees• Transparent and predictable criteria for allocation of funding for the development of research organizations / teams• Established central administrative support team for projects funded (partially) by EU	<ul style="list-style-type: none">• Large differences between the scientific performance of the best and the weakest branches/departments – slowly improving since 2020 due to the phd incentives• Distribution of institutional research funding based mainly on quantitative criteria rather than a clear long-term development plan• Significant portion of researchers employed for limited period, typically 3 years (done by a duration of research projects funded by external providers)• Absence of experienced supervisors in the weakest scientific branches – two habilitation procedures started• Administration not fully prepared for non-native Czech speakers - improved• Interpretation of “quality” not universally shared, top priorities not aligned among units - slowly improving, Q1 publication also at “weaker” depts• Low number of high-quality international research projects - increased 10 -> 35
Opportunities	Threats
<ul style="list-style-type: none">• Use EU-funded projects to retain young researchers• Attract international talents from both eastern (namely Slavic lands) and western countries - more foreign PhD students• Increase in the number of international projects (HE, ..) - increased 10 -> 35• Internationally recognised researchers at CIIRK Institute contribute to teaching & phd supervision - CIIRK became an official supervision department of FEE in 2024	<ul style="list-style-type: none">• Loss of young researchers due to funding problems after research project completion• A decline in the number of doctoral students, especially in science-weaker branches as a result of leaving for more lucrative positions in industry – improving since 2022: the number of phd students increased due to the long-term adopted simplification of study rules and improved PR strategy• General decline of interest, among high school students, to pursue a career in STEM (Science, Technology, Engineering, Math) subjects. - number of students increased due to the adopted professional PR strategy.