

Industry and *academy* collaborations

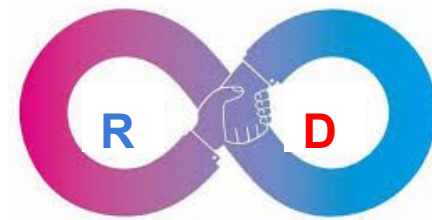
Levente TAMAS

ROCON@{UTCN, Robotics.AI}



Industry

academia



R&D

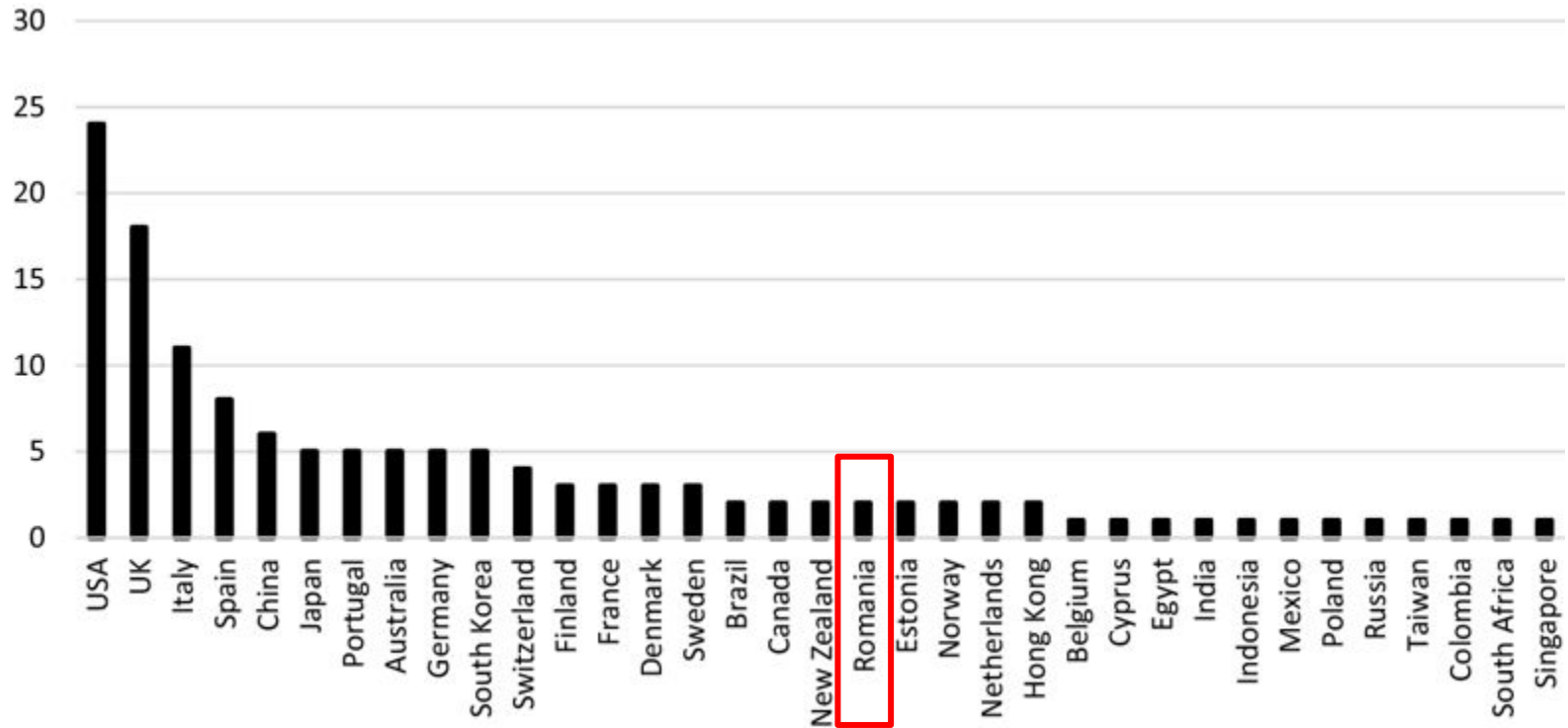
- Industry $\frac{4}{5}.0$
- Fintech
- Robotics
- AI
- ...

R&D

- Research
 - Base
 - Applied
- Training/education
 - From HR perspective
 - From tech side



... connections - where is really a priority?



... connections - **USA**

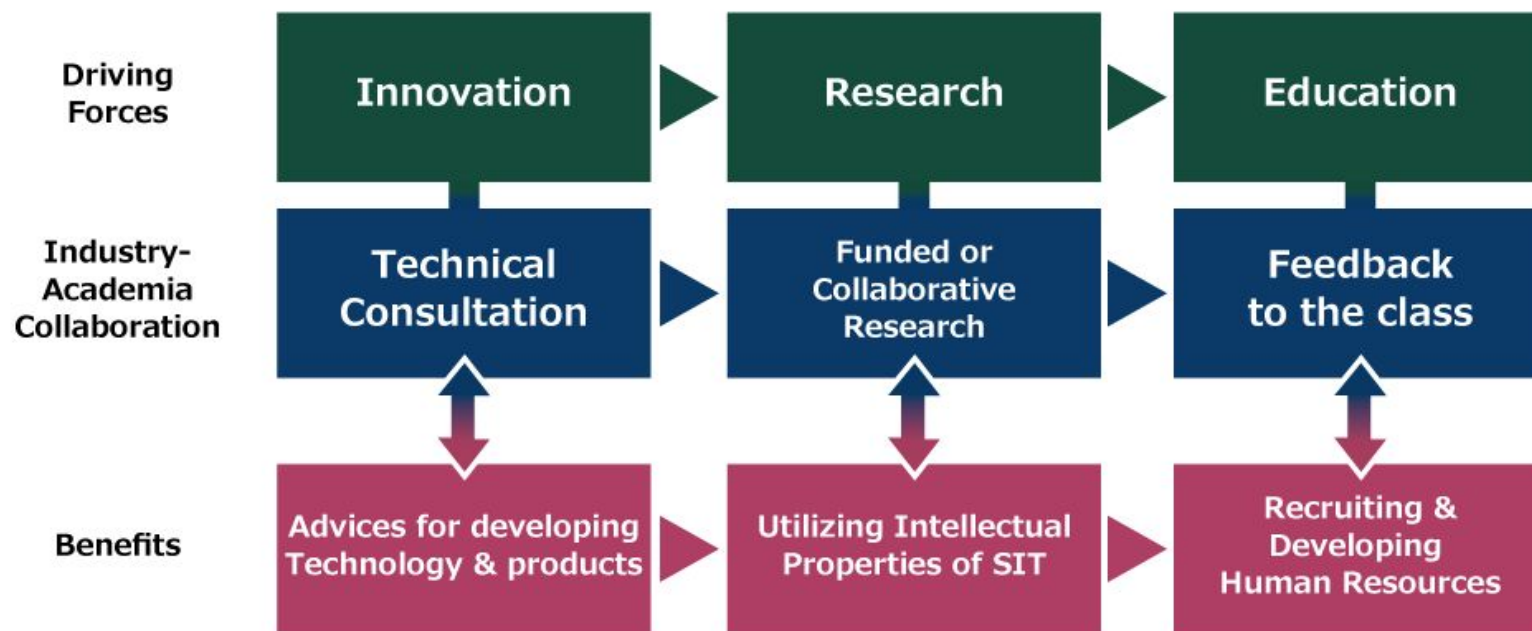
3 suggestions:

- **Get a head start**
- **Work out the details**
- **Boost transparency and trust**



... connections - JP

Trinity driving forces by Education, Research and Innovation



... connections - local level



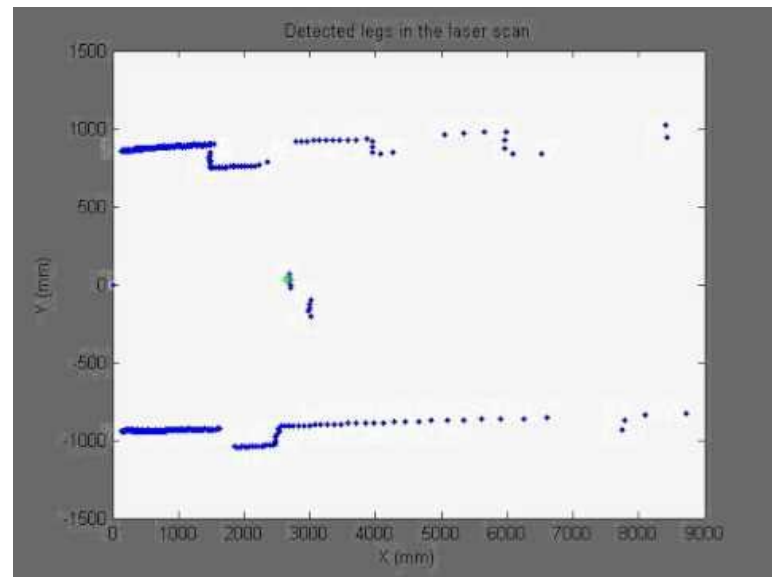
R&D@ROCON: connections

- Several active **company** level connections:
 - Accenture
 - Analog Devices
 - Bosch
 - Emerson
 - NGi
 - Nvidia
 - Siemens
 - Braintronix
 - ...
- Spin-off company
 - **Robotics.AI** → to be the first “officially” recognized spin-off by UTCN
- Projects **over 1M\$** in the last decade

AutonomousX: RRG&Dacia

Tools: 2D laser, GMM, stereo cam → early 2010

Budget: 10KEUR



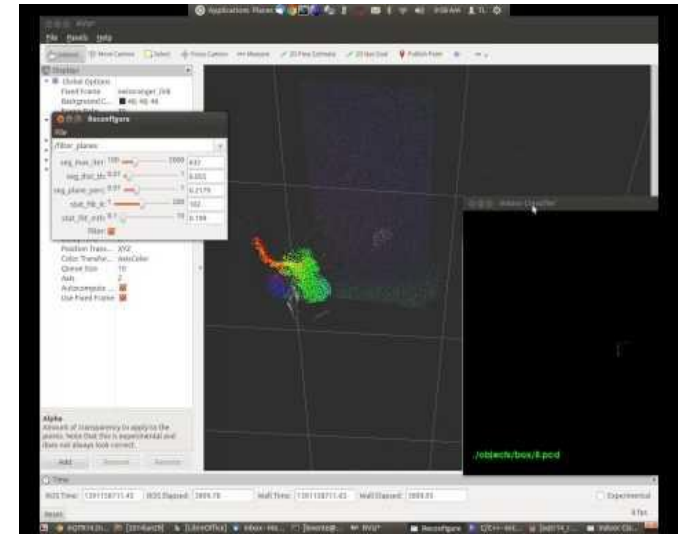
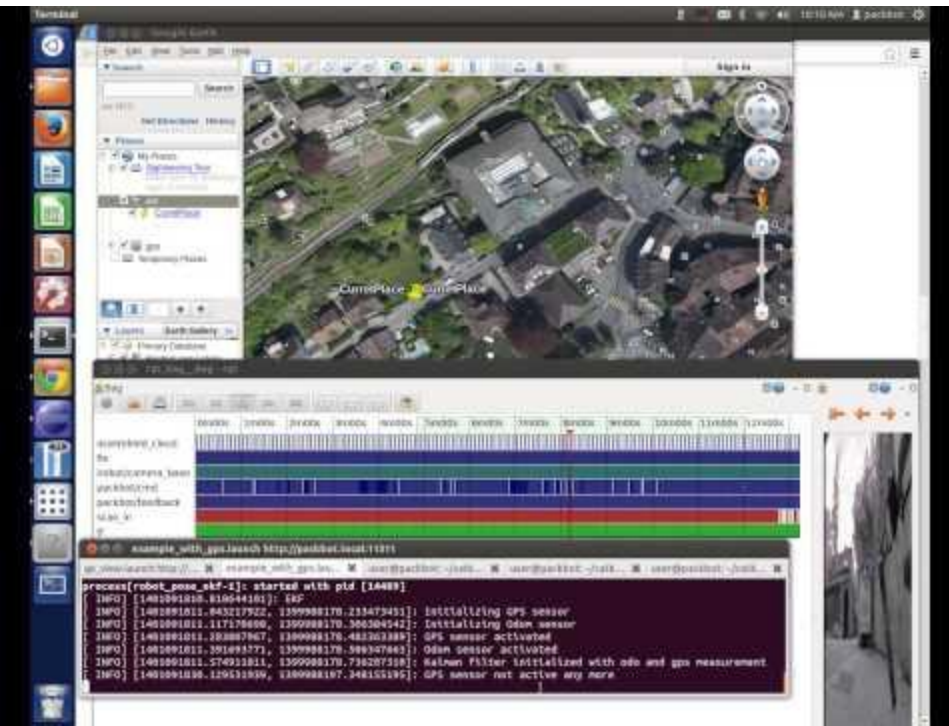
AutonomousX: RRG&RuAG

Tools: 3D laser, UKF, reco → 2013

Budget: 50KEUR



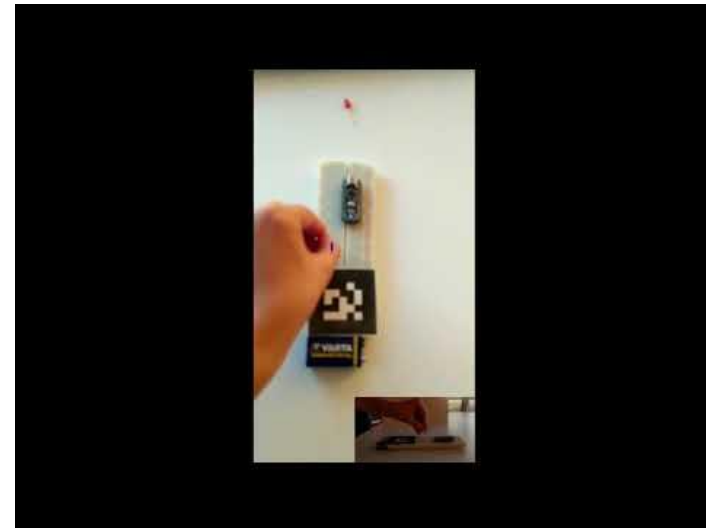
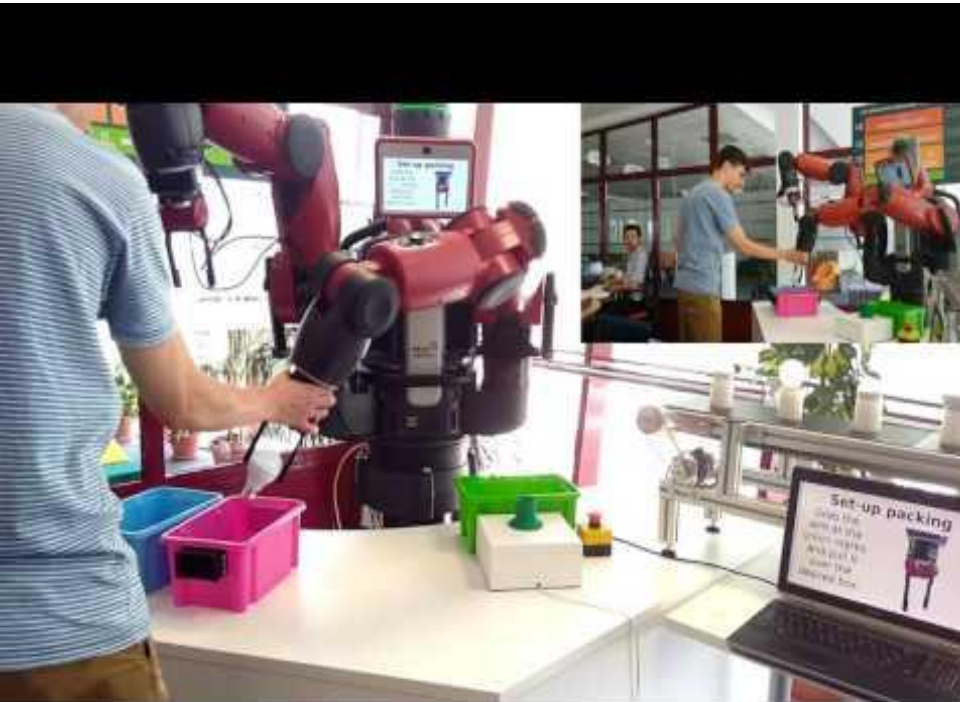
EAAI2014, ICRA 2014



Industry 4.0: ROCON&Accenture

Tools: cobot, MES integration, AR - 2016

Budget: 100KEUR



IJPS2019, OSIM 2019



AR/AI for robotics: Braintronix, NGi

Tools: 3D computer vision,

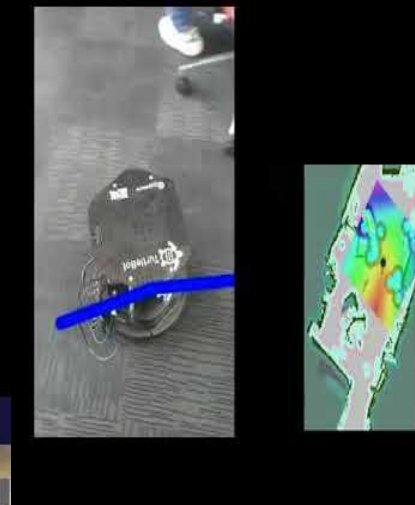
Budget: 2x100KEUR



AGV

Status	Node
0.696	Pose x
-0.004	Pose y
0.0	Pose z
0.0	Acceleration x
0.0	Acceleration y
-0.036449577781	Acceleration z

The screenshot shows a table with two columns: 'Status' and 'Node'. The data rows are: (0.696, Pose x), (-0.004, Pose y), (0.0, Pose z), (0.0, Acceleration x), (0.0, Acceleration y), and (-0.036449577781, Acceleration z). A QR code is visible in the top right corner of the screenshot.



RCIM2021



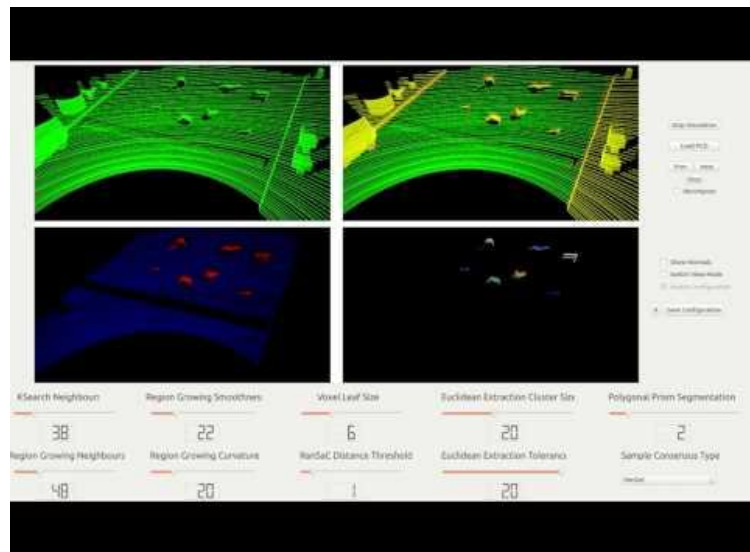
2D/3D computer vision: ADI

Tools: 2D/3D fusion, deep learning, recognition

Budget: 3X100 KEUR + 2X100KEUR

OSIM patent

Several journal papers



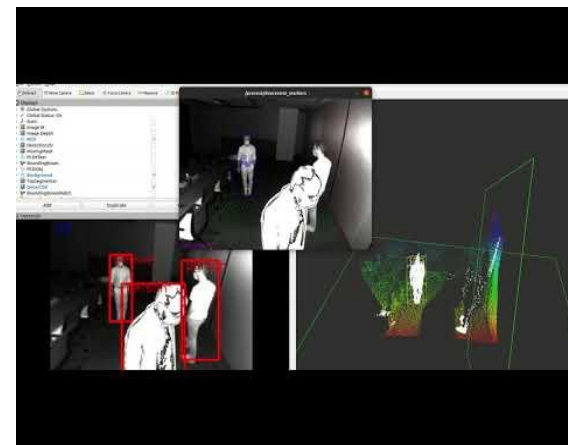
TPAMI2021



SPIE2021

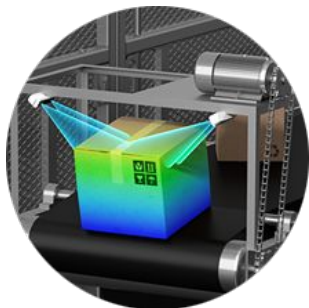


Sensors2021



Industrial embedded DL - Analog Devices + NVidia

- Developing AI based 3D machine vision solutions
 - Roadmap to develop edge and cloud AI machine vision algorithms
 - Partnership with university research centers
 - Collaborations with machine vision startups
- NVidia DGX grade server grant



Industry 4.0 & Logistics



Healthcare



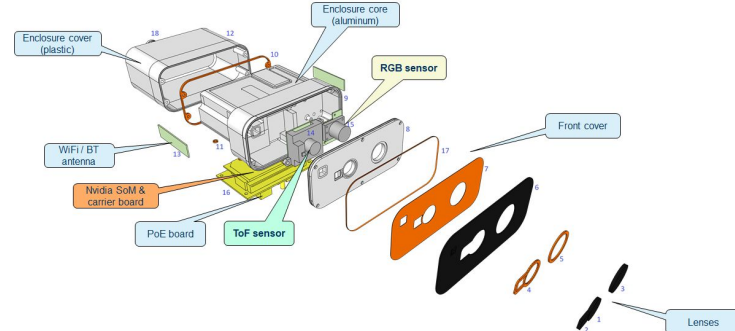
Smart buildings



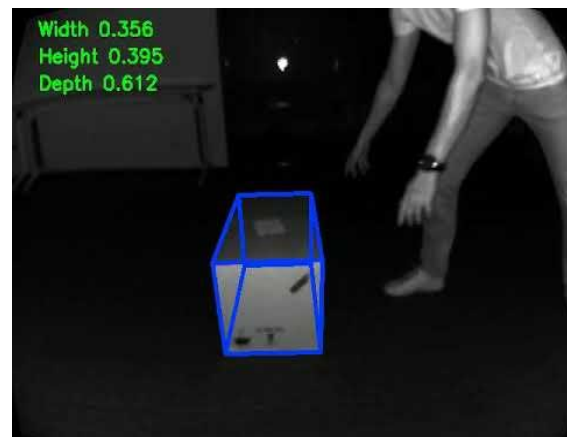
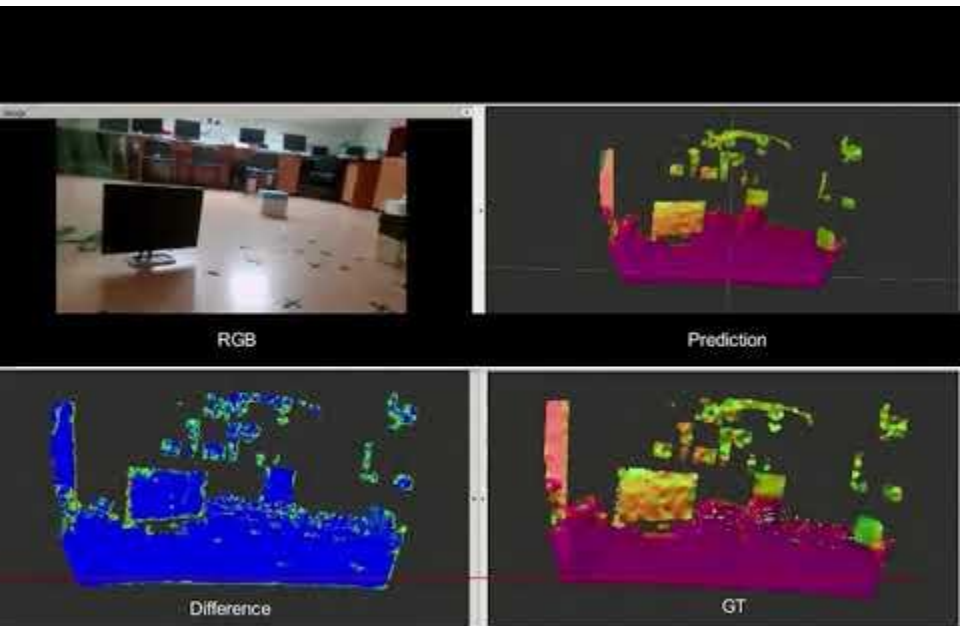
Robotics



Ongoing collaboration ...

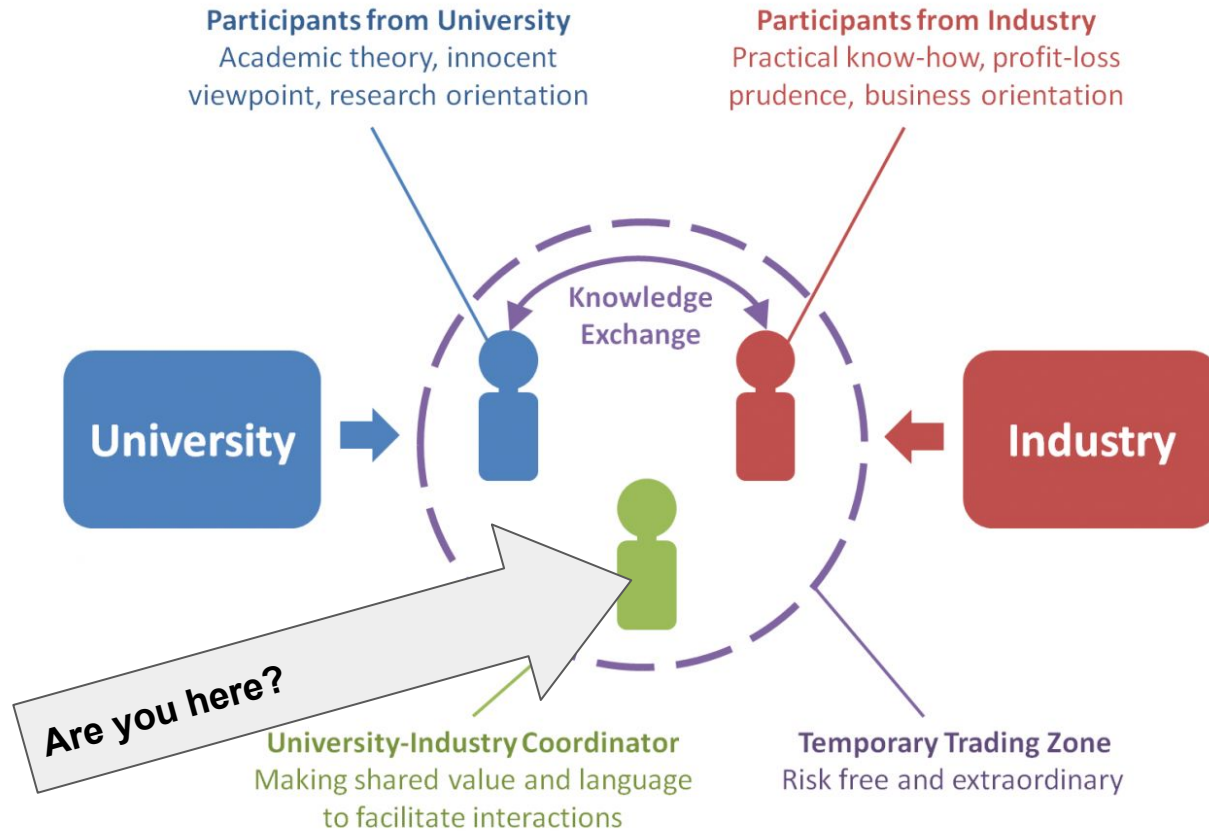


ICCV 2021



... collaborations - summary

Technology Innovation Management Review



Thank you for your attention!

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