

Building Impact: How Research Becomes Technology

Mohannad Alhanahnah


Scientist@Cybersecurity Group

QCRI/HBKU

Motivation

Talk by VP at Google - Dr.
Vahab Mirrokni

B1-0208 - Multipurpose Hall

 teams.microsoft.com ▾

23 Dec 2025 10:00AM – 11:30AM

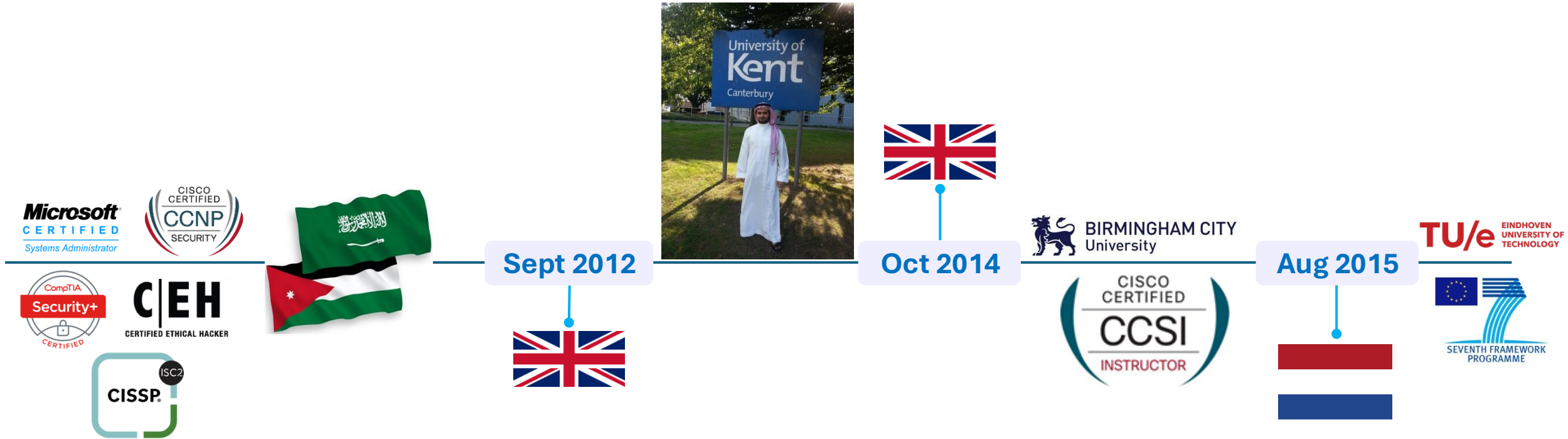
Impact Report

2024 - 2025

QCRI
معهد قطر لبحوث الحوسبة
Qatar Computing Research Institute
جامعة حمد بن خليفة
HAMAD BIN KHALIFA UNIVERSITY



My Journey







July 2025



My Research: Impact



Academic

Publications top-tier venues.
ACM SIGSOFT Distinguished
Paper Award at ISSTA'20.
Distinguished artifact award at
DSN'25



Innovation

2 Issued patents.
Co-founded a Startup



Tools

Tech transfer used by US Navy.
Contribute to open-source
projects e.g., Langroid.
Reported bugs to open-source
tools like Syft.



Funding

1.5 Million USD



Service

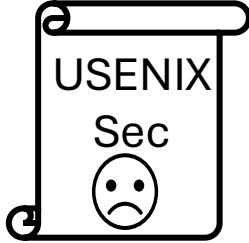
PC Reviewer
Artifact Reviewer
Co-founded: MadSP,
MadCTF

We have an idea to do **software debloating**, no commeralization plans, no use case, etc..

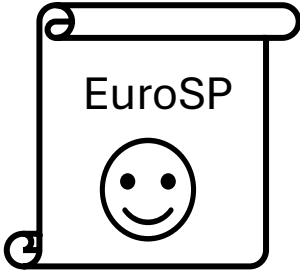
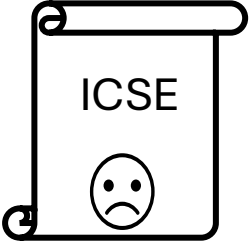


preparing a paper

High-Quality Manuscript



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Submission journey (2 yr)



Patenting journey (3 yrs)



\$500k
Commeralization journey (2 yrs)



Development

LMCAS Prototype

Tech Transfer journey (3 yrs)

LMCAS TaBaCCo

Invitation to deliver a training



Accelerate

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preparing a paper

High-Quality Manuscript

USENIX Sec
☹️

ICSE
☹️

EuroSP
😊

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LMCAS Prototype

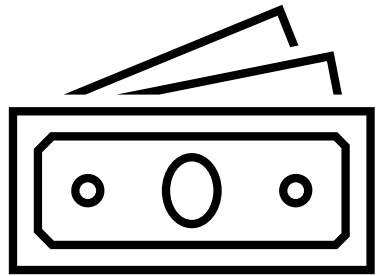
Tech Transfer journey (3 yrs)

LMCAS TaBaCCo

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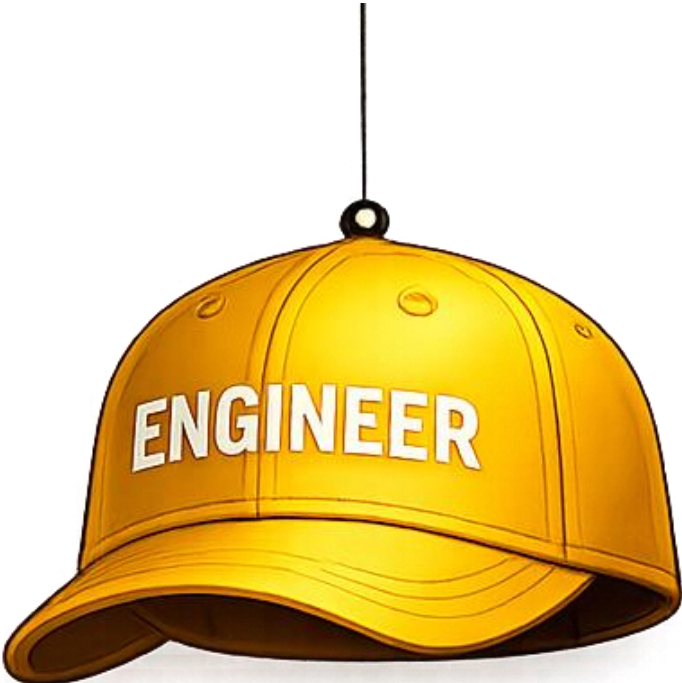
Accelerate



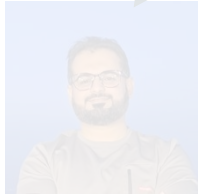
\$1 Million



Three Roles, One Mission



We have an idea to do **software debloating**,
no commeralization plans,
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preparing a paper

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LMCAS
Prototype

Tech Transfer journey (3 yrs)

LMCAS
TaBaCCo

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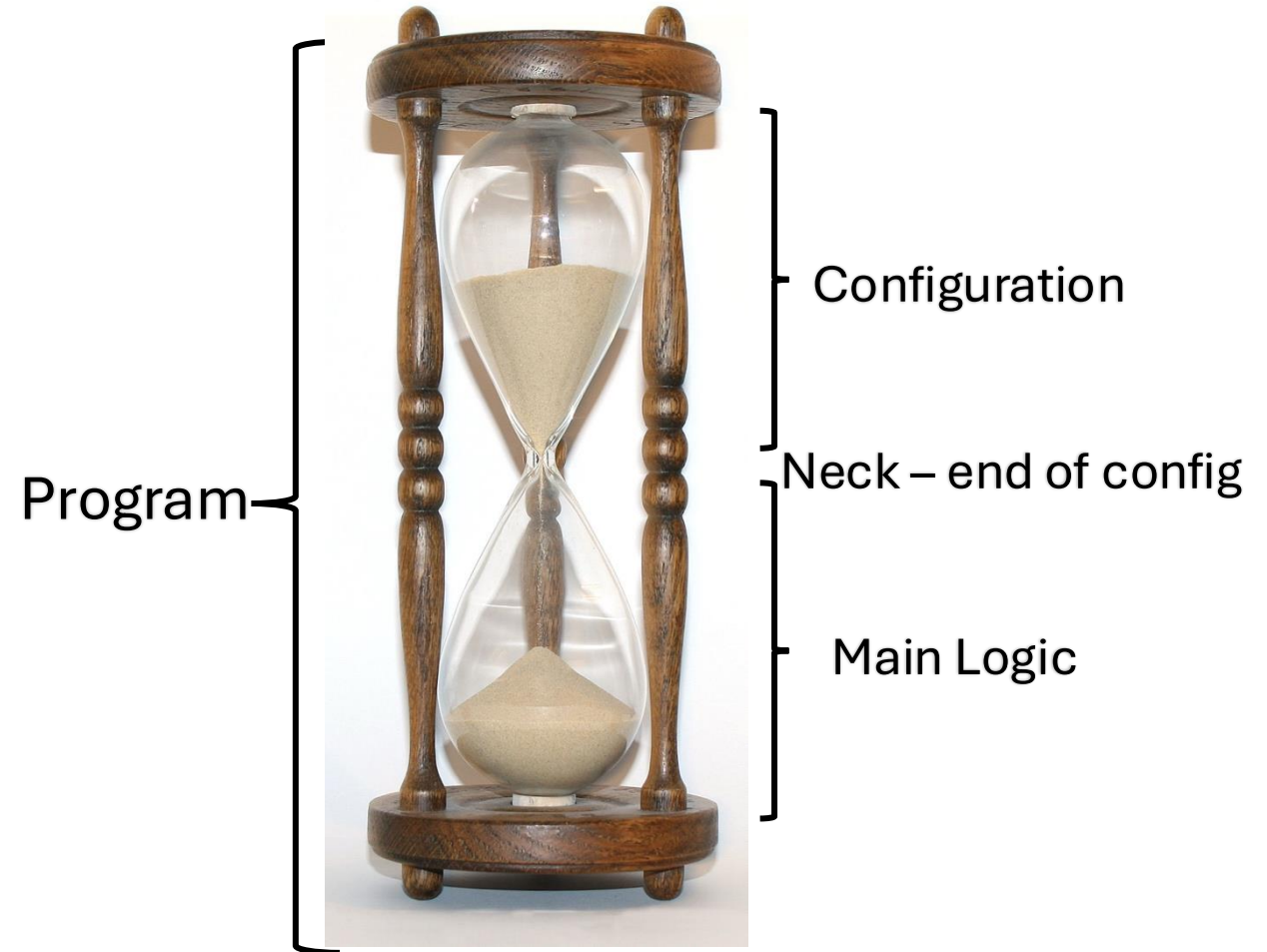
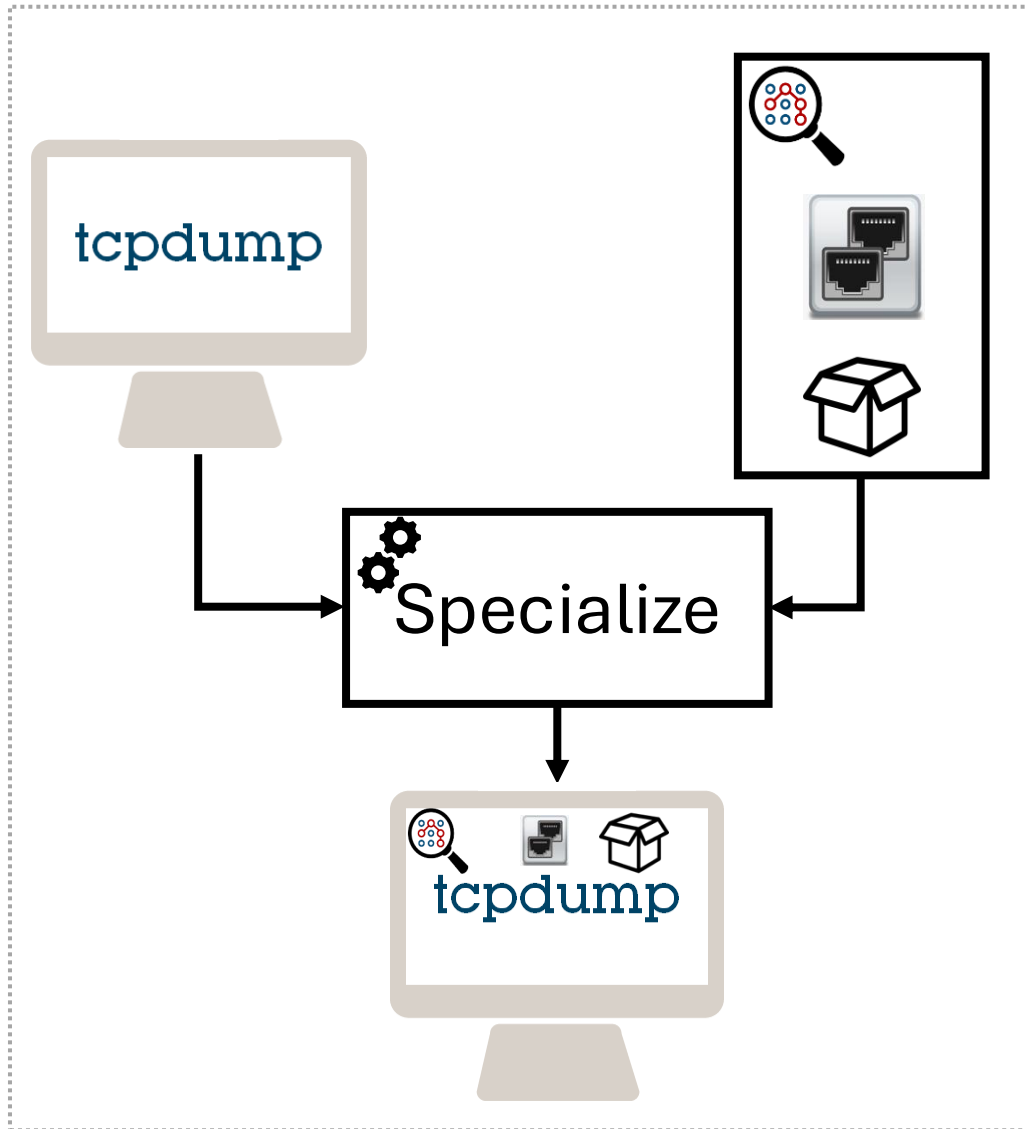


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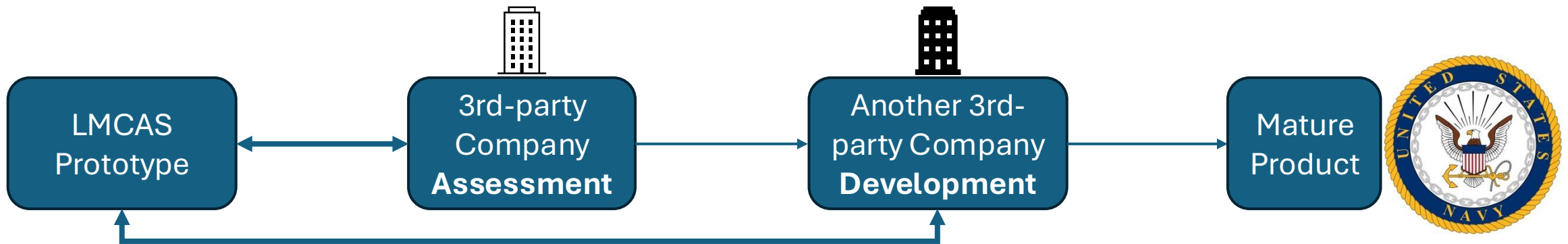
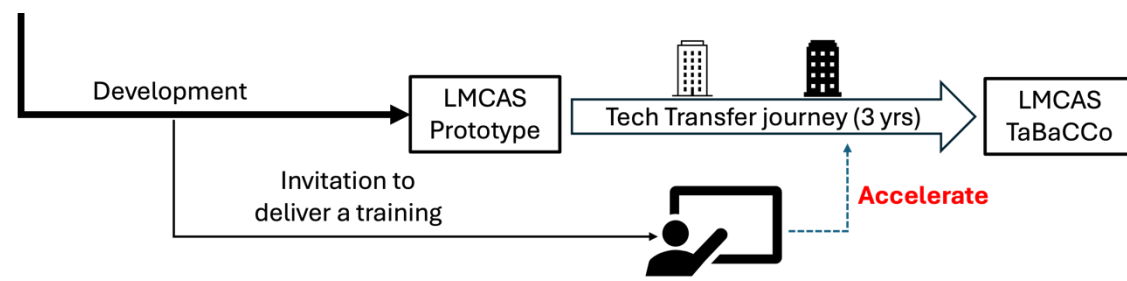
Tech Transfer vs. Commercialization

Criteria	Tech Transfer	Commercialization
Funding	✓	✗
Customer	✓	✗
Use Case	✓	✗
Dedicated Team/person from the inventors	✗	✓

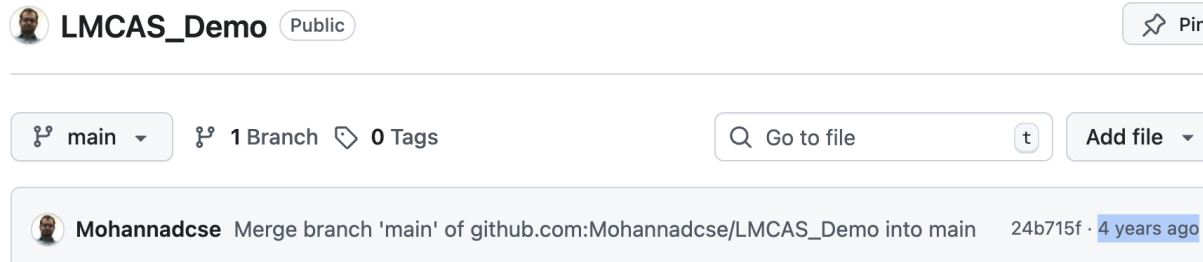
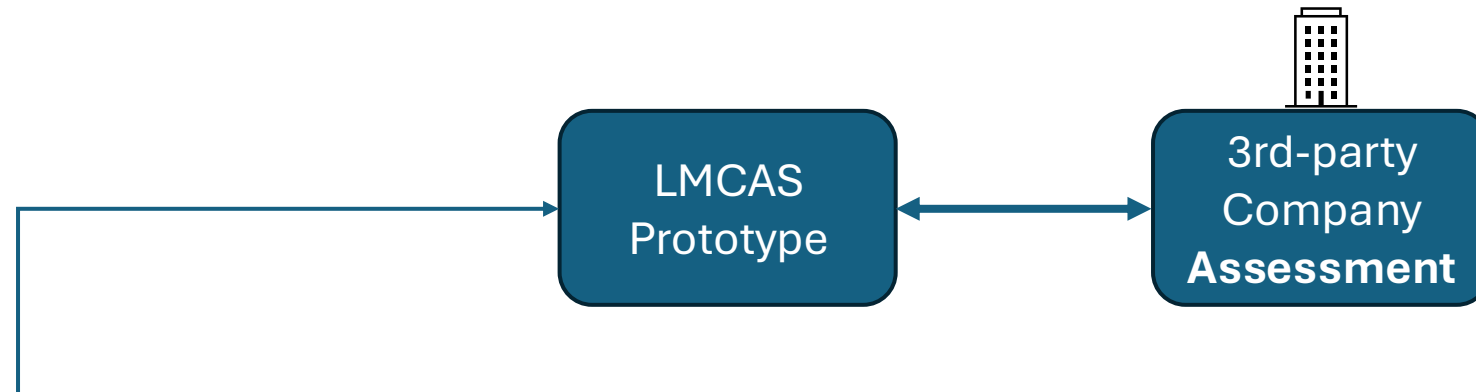
What was the idea?



Tech Transfer



Tech Transfer - Assessment



1-2 engineers
How to run the tool?
Examples demo LMCAS

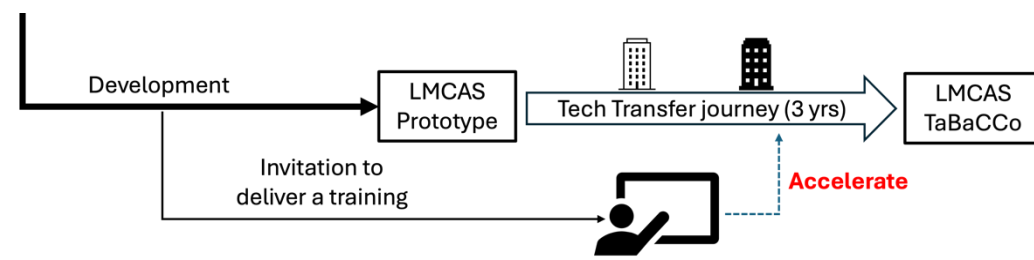
Tech Transfer - Development

- 4-5 engineers
- How to run LMCAS?
- What are the limitations?

- What are the main challenges?
- What are the apps that LMCAS can't handle?
- How to improve LMCAS?
- Is it okay if we change this?



Tech Transfer



LMCAS_Demo Public

main 1 Branch 0 Tags

Go to file t Add file

Mohannadcse Merge branch 'main' of github.com:Mohannadcse/LMCAS_Demo into main 24b715f · 4 years ago

3 Years



SIFT Imcas Public

main 2 Branches 0 Tags

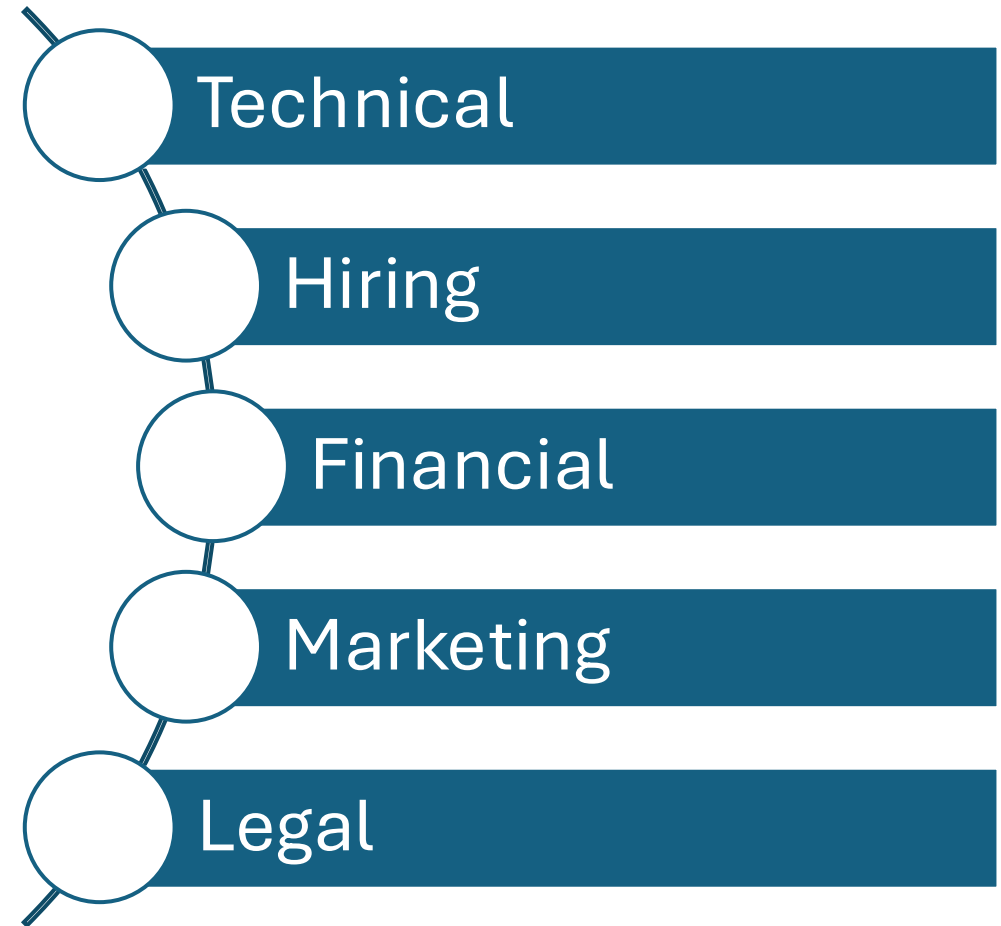
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mzhang28 and Nathan Ringo initial ✓ ecc2f61 · last year

The original version of LMCAS was developed by the University of Wisconsin, and is available [here](#). See [doi:10.1109/EuroSP53844.2022.00024](https://doi.org/10.1109/EuroSP53844.2022.00024) for more information.

This version of LMCAS, called TaBaCCo (Tape-Based Control-flow Concretization), replaces the original UWisc LMCAS algorithms with a more **robust** and **easier to use approach**. TaBaCCo incorporates new algorithms to **handle more applications**, such as applications that use configuration files to control functionality. TaBaCCo automatically analyzes the source code to automate some tasks that required human intervention in the original LMCAS tool.

Entrepreneurship



Contribution Open-Source Community



Code review

Added new features:

- Neo4j support
- Azure OpenAI
- Logging and cost reports



LANGROID

MULTI-AGENT FRAMEWORK
FOR LLM APPLICATIONS



Take Away

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How REG Can Enable Successful Tech Transfer

RESEARCH ENGINEERING

Founded in 2018, the Research Engineering Group has followed a vision of becoming an innovation hub that generates transformative solutions addressing real-world challenges of both local and global significance.

The Research Engineering group's mission is to transform QCRI research outcomes into robust and commercially viable products. The focus is distinctly on creating solutions that have tangible real-world applications and

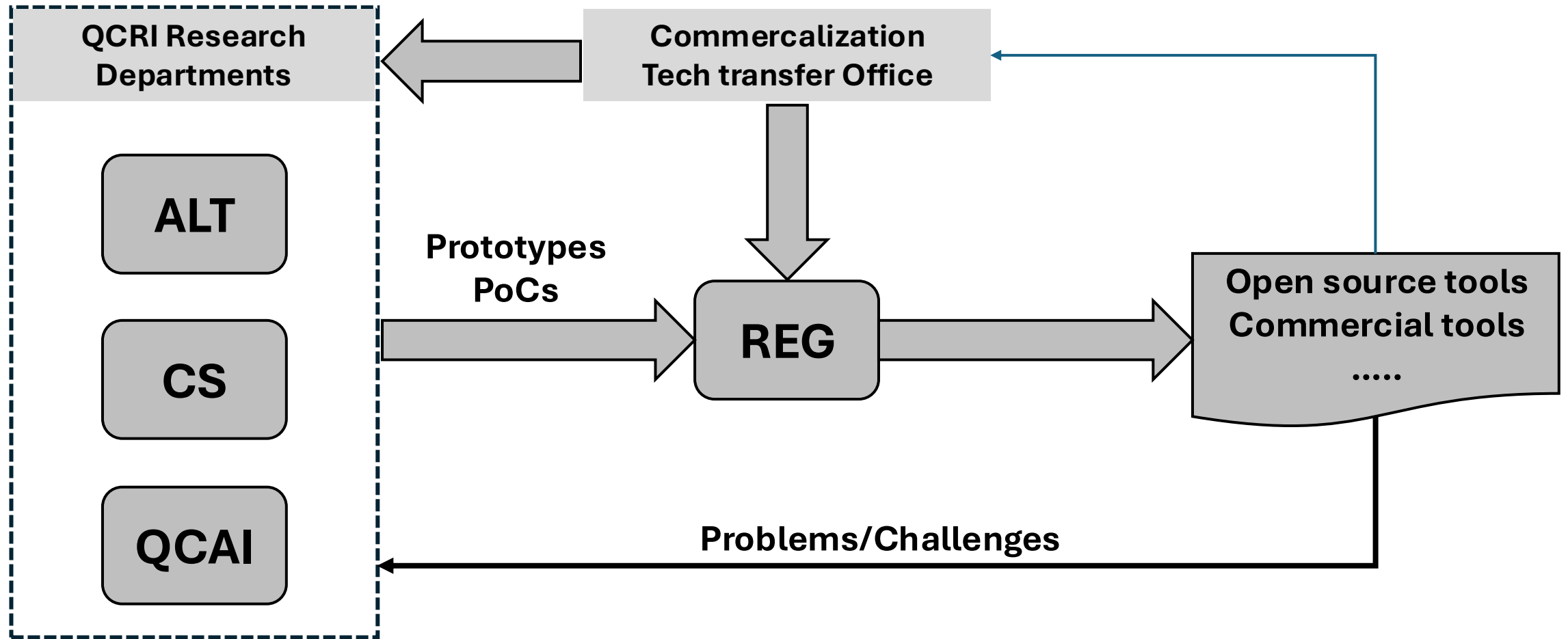
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Draft Tech Transfer Model for QCRI





Conclusion

- There is no straight path for tech transfer
- Building useful things take time
- QCRI needs to adapt its own tech transfer model
 - REG can play a vital role in this model
 - Mature assessment
 - Incentives