ccais | Citizen-Centric Artificial Intelligence Systems

Citizen-Centric AI Systems

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Turing AI Acceleration Fellow
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UKRI UK Research and Innovation   The Alan Turing Institute   University of Southampton

Promise of AI

- Hyperconnected AI systems have tremendous promise to address grand societal challenges.
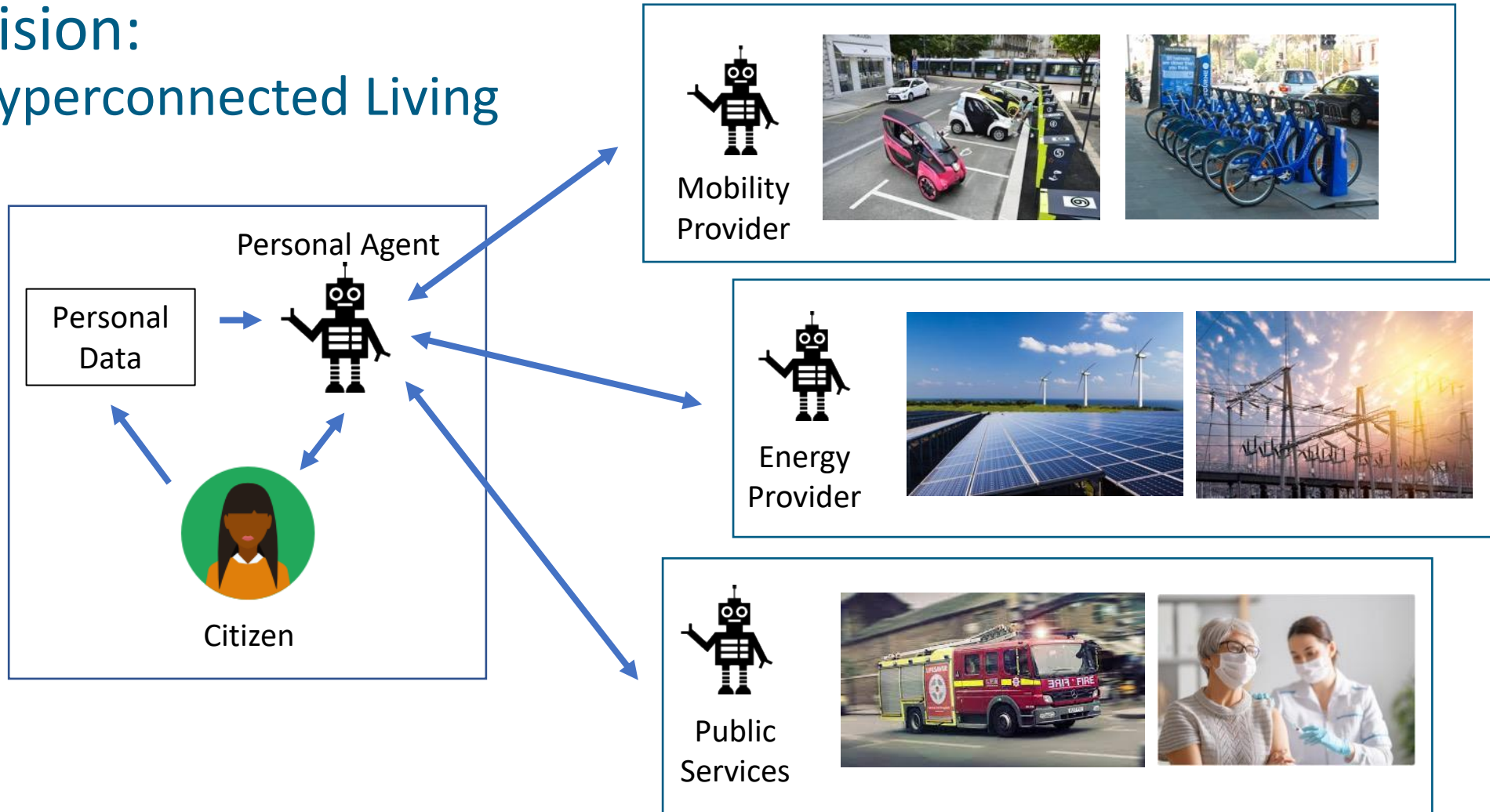

Smart Transportation

Smart Energy

Disaster Response

Vision:
Hyperconnected Living

Personal Agent

Personal Data

Citizen

Mobility Provider
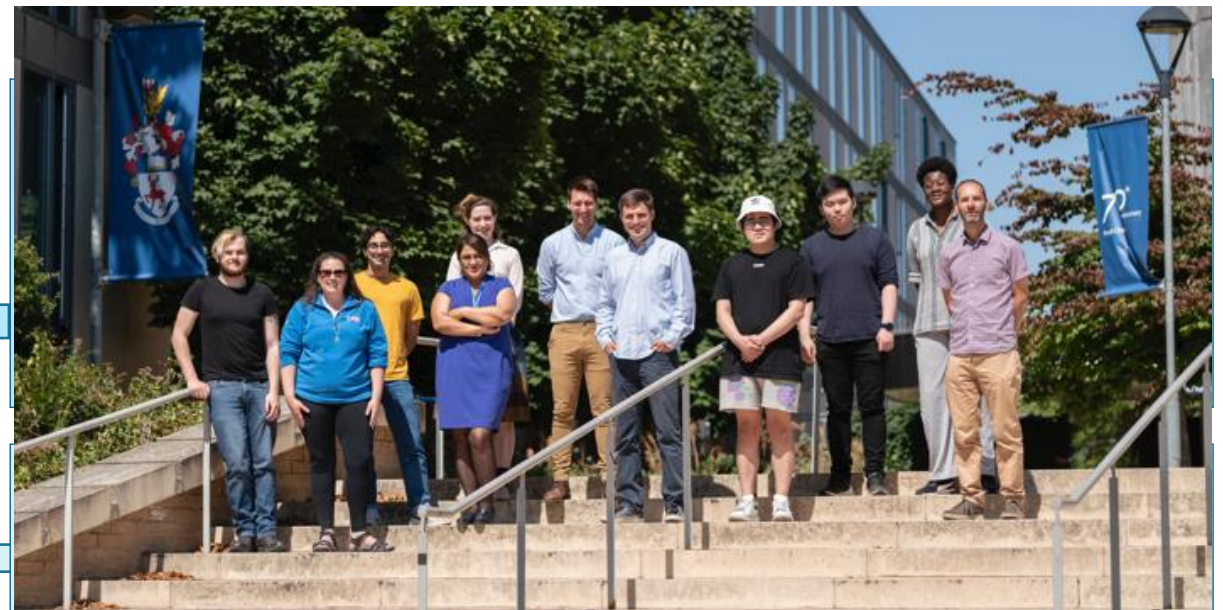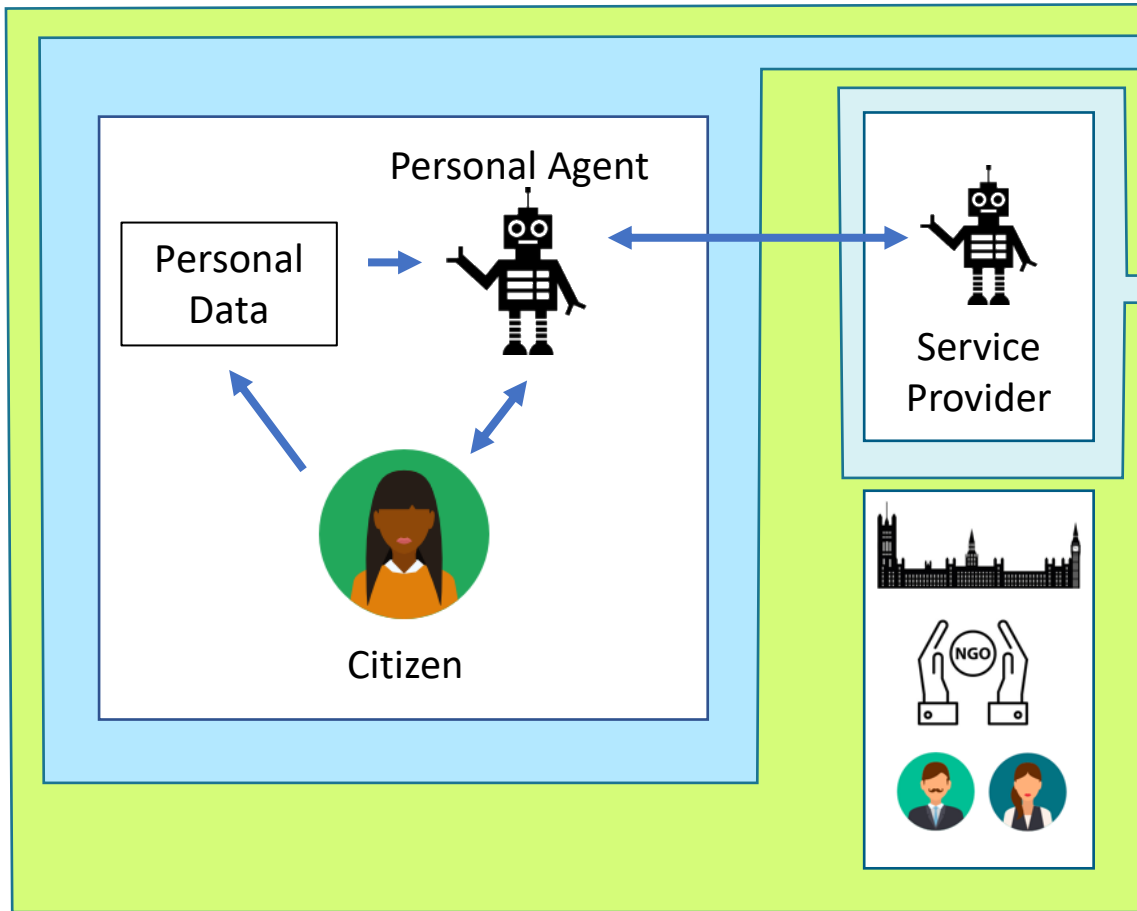
Energy Provider

Public Services

Challenges

How do we ensure that citizens are able to trust these AI systems?

- They need to be **citizen-centric:**

  - **Citizen-aware:** learn citizens' preferences and requirements.

  - **Citizen-beneficial:** consider incentives and provide value to every citizen.

  - **Citizen-sensitive:** make fair and equitable decisions.

  - **Citizen-auditable:** provide explanations and allow input from all stakeholders.

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Personal Agent

Personal Data

Service Provider

Citizen

NGO

citizens?

algorithms to citizens?

- How ... stakeholders to participate in a continuous feedback loop?

CATAPULT [dstl] SIEMENS IBM Research ea technology

CATAPULT Energy Systems   FAWLEY WATERSIDE   JAGUAR   LAND-ROVER   THALES   utu

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Preference-Aware EV Routing
Dr Elnaz Shafipour

- AI for suggesting **personalised** routes for EV drivers.

- Surveyed **1,200 EV drivers** about how they currently select charging stations on long journeys.

    - Wide diversity of preferences

- Using combination of reinforcement learning and discrete choice models.
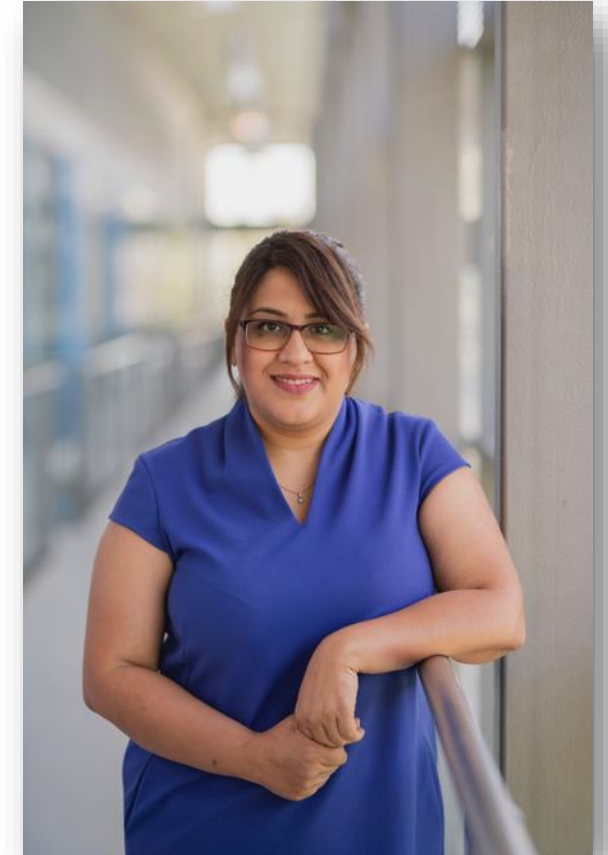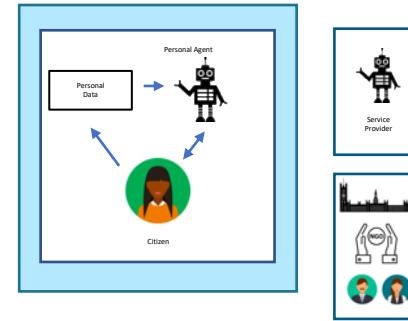
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https://bit.ly/ev-brief

- Shafipour, E., Stein, S. (2022). EV Charging on Long Journeys: Current Challenges and Future Opportunities. Policy Brief

Incentives in Ridesharing
Lucia Cipolina-Kun

- Application of game theory (coalition formation) to compute **fair payments for shared taxis**.

- Assumes single central pick-up and drop-off and considers the cost of walking.

- Computable in polynomial time.

- Compensates riders for their walking effort.
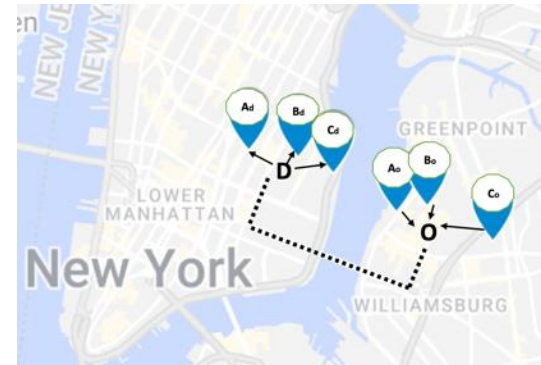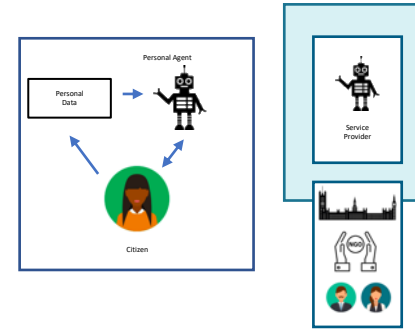
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- Cipolina-Kun, L., Yazdanpanah, V., Gerding, E., Stein, S. (2022). A Proportional Pricing Mechanism for Ridesharing Services With Meeting Points. PRIMA 2022 (in press)

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Trustworthy AI Audio Services
Dr Jennifer Williams

- Audio services can help us **optimise smart buildings**.

  - Detect occupancy levels

  - Infer activities

  - Provide security

- But there are significant trust, privacy and security issues.

Single Speaker

5 Speakers

The Co-Design of Context-Aware Trustworthy Audio Capture
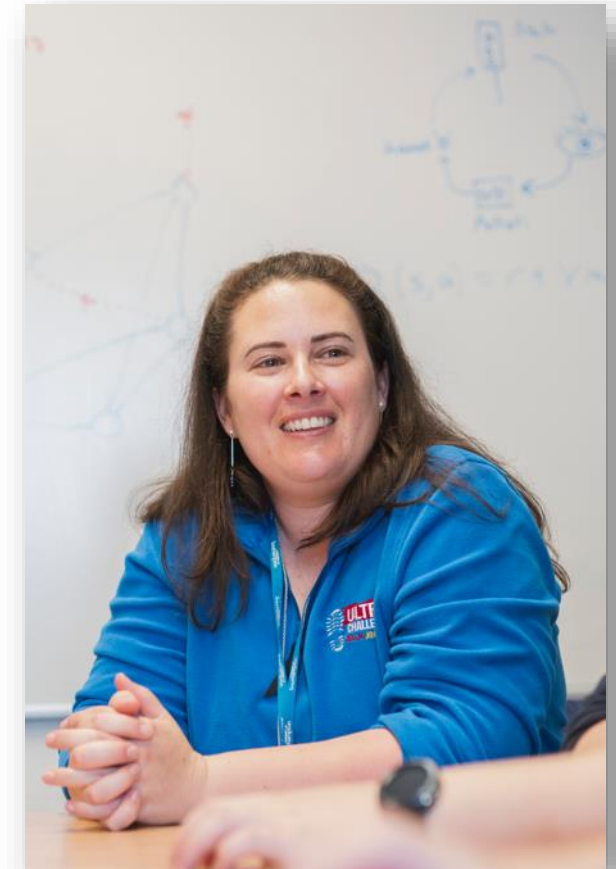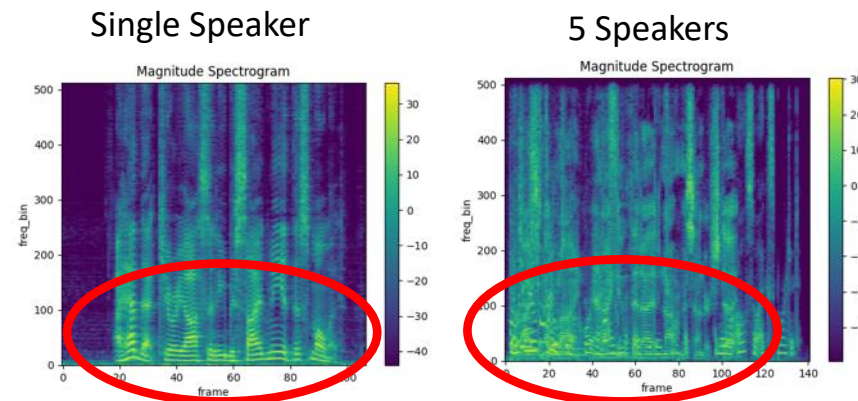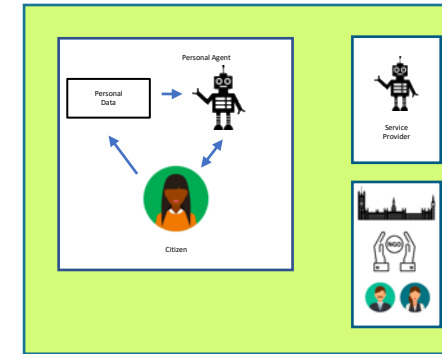
@ J.Williams@soton.ac.uk   🐦 @jenn_speech

- Williams, J., Yazdanpanah, V., Stein, S. (2022). Safe Audio AI Services in Smart Buildings. BuildSys 2022 (in press).

CWIC 2022: Seb Stein - Citizen-Centric AI
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Thank you!

Find out more:

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Turing AI Acceleration Fellowship

- £1.4M project funded by UKRI

  - Delivered in close collaboration with Alan Turing Institute, DCMS and BEIS

  - Investment to support UK AI strategy

  - 1 of 15 Turing AI Acceleration Fellowships

- 5-year duration (2021 – 2025)

- 10 industrial partners: