ROXANNE

Real time network, text, and speaker analytics for combating organized crime

i-LEAD Research Day

Costas Kalogiros (AEGIS IT Research)
contact: ckalog@aegisresearch.eu

AEGIS IT RESEARCH

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This project has received funding from the European Union's Horizon 2020 Work Programme for research and innovation 2018-2020, under grant agreement n°833635.

ROXANNE Consortium - Partners

24 Partners across 16 Countries

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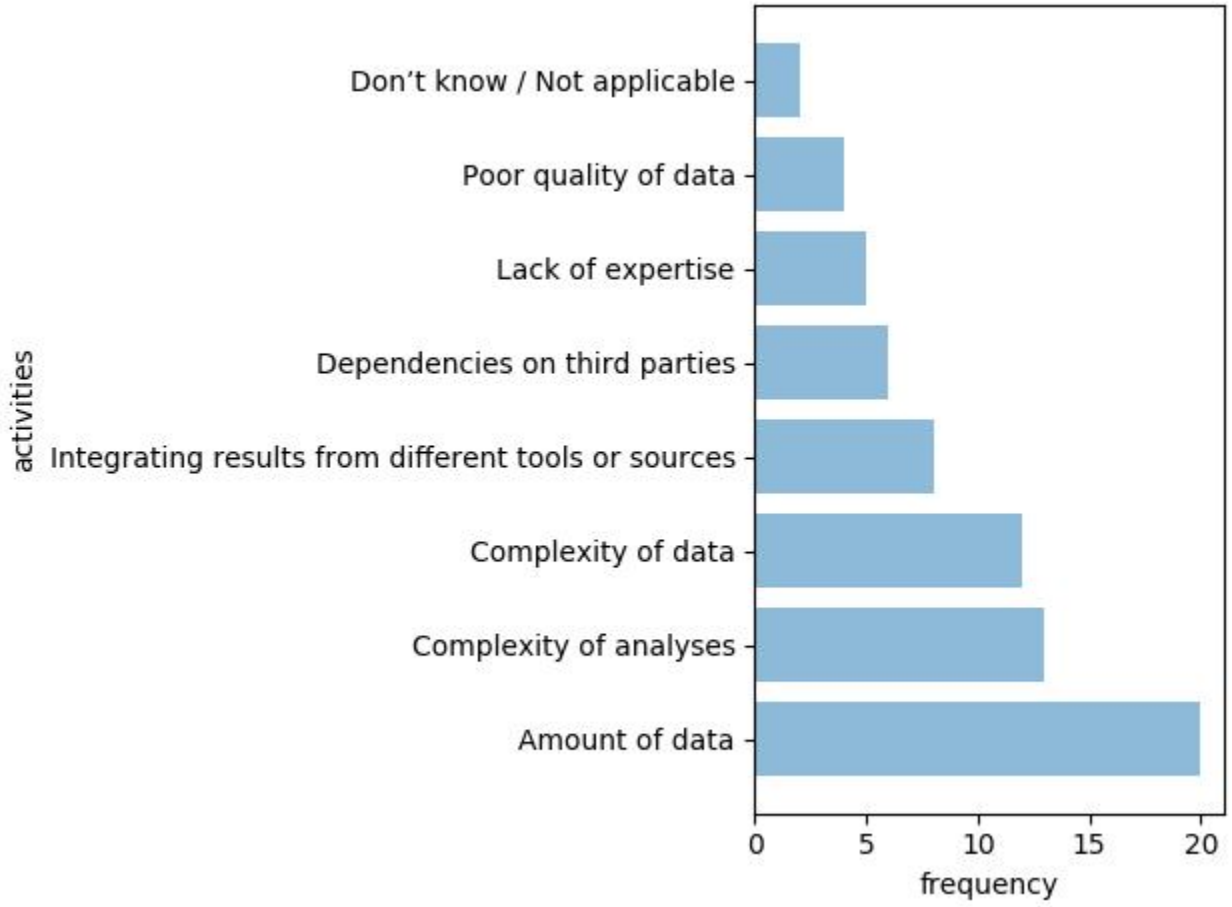
LEAs' pain points

- ROXANNE run a survey on LEAs' requirements in Q2 2020.
- 121 responses were collected from 40 countries highlighting that amount of data to be processed and analysed is the main pain point



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ROXANNE Objectives

LEA	Speed up investigation of large complex criminal cases (mixing SIM, cross-border, multiple-languages, use of nicknames, detection of leader, innocents, …)
DEV	Platform to combine evidence extracted from multimodal sources with network analysis
RESEARCH	Bi-modal interaction between processing technologies and network analysis
ETHICAL	Implementing an ethics-by-design and privacy-by-design approach

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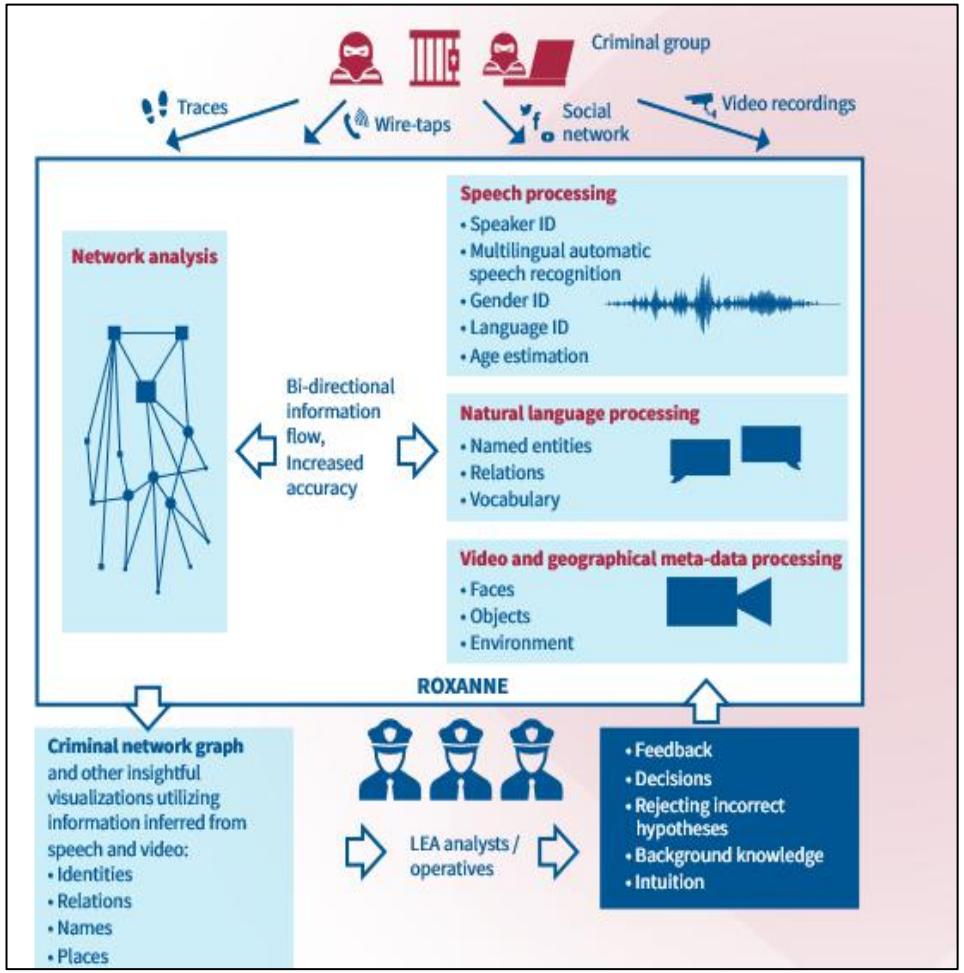
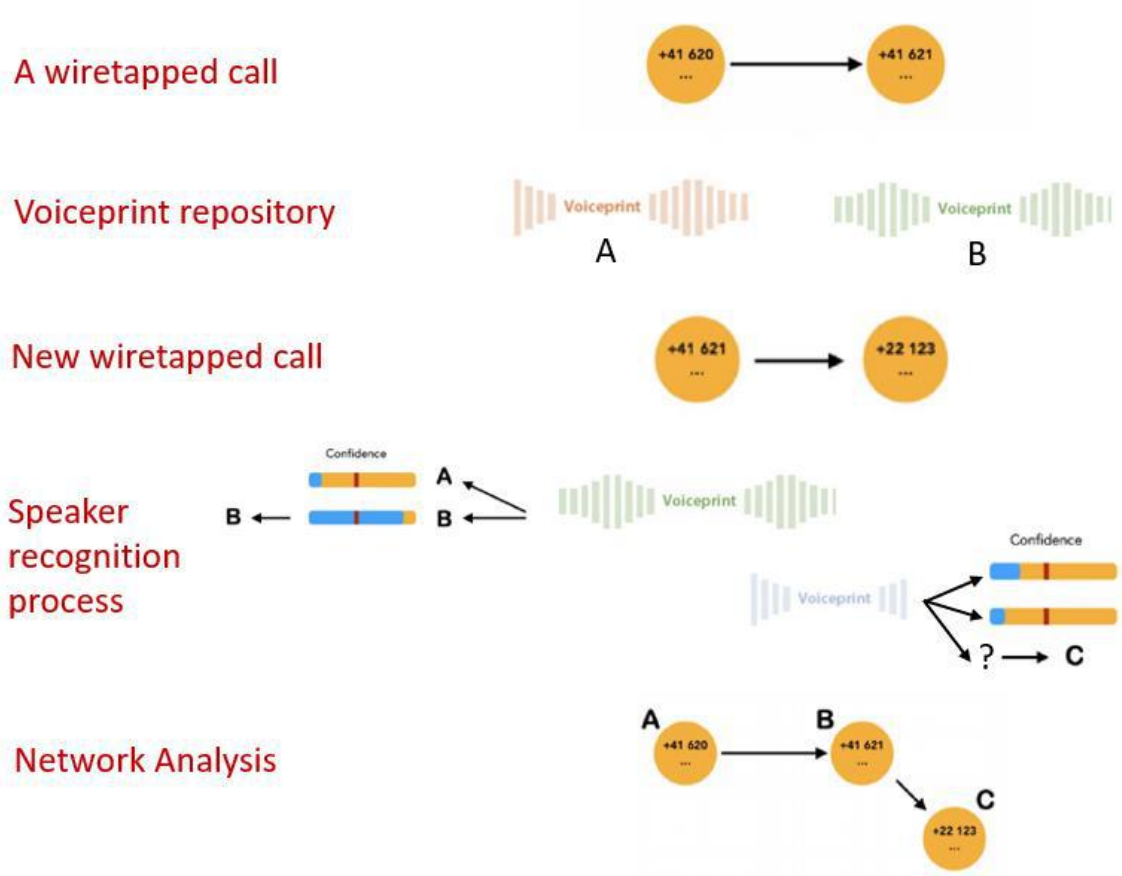
ROXANNE Overview



Speaker Recognition feeding Network Analysis



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The synthetic dataset for a hypothetical case

- The consortium decided to build ROXANNE simulated data set, which is supposed to be as close to the real data as possible. All participants consented, and use of research subjects approved by partner ethics committee. It includes:
  - 100 target stereo channel calls;
  - metadata (i.e., CDR info).
- The fictional screenplay prepared by the Police of the Czech Republic that involves three drug dealing cases.
  - A drug distribution case (DDA)
    - Kryštof, a university student in Prague, is suspected of selling drugs.
    - The police has wiretapped his two mobile phones. The wiretaps have shown that Kryštof is in contact with other Czech individuals that are either users or distributors of drugs. Communication is in Czech or Slovak. The police also start wiretap on the mobile phones of his contacts, Kristýna and Horký.
    - Kryštof often calls Sergej and speaks English. The police wiretap also Sergej's telephone.
  - A drug distribution case (DDB)
    - the police investigate for Alexo, an Austrian student at the Charles university, suspected of the distribution of drugs in Prague city centre.
    - Alexo's telephone is wiretapped while he is in contact with several unknown individuals. He is speaking German and English in his calls.
  - A drug lab (DLA)
    - the police suspect that two Vietnamese, Tuấn and Hoàng, are dealing drugs in large quantities and that Hoàng may have a production site. Their telephones are wiretapped. They mostly speak Vietnamese.
- The investigator uploads simulated wiretapped recordings of suspects' telephone conversations into ROXANNE platform in order to identify whether and how these suspects are connected.

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Demo!

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Next Steps

- The ROXANNE platform is currently being extended to:
  - Improve accuracy by:
    - considering user feedback and
    - combining outputs of different modules (e.g., Speaker Recognition & Network Analysis)
  - Support additional modalities (e.g., video)
- The ROXANNE project plans to release:
  - the final version of the ROXANNE platform free of charge to interested LEAs
  - the synthetic dataset to other researchers (expanded to also include non-target calls)

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Thank you!

Any questions?

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