Marie Skłodowska-Curie - ITN - Early Stage Researcher (ESR)

PhD student position in signal processing & IOT

September 22, 2016

Role Profile

Post:	**Marie Curie-ITN - Early Stage Researcher Research (1 position)**
Institution:	**Centre for Research and Technology (CERTH)/ Information Technologies Institute (ITI)**
Location:	**6th km. Charilaou-Thermi Rd., Thermi –Thessaloniki, GREECE**
Tenure:	**Fixed-term for 3 years**
Scale of Pay:	**In accordance with the MSCA-ITN rules: 34,590€ gross per year, subject to health insurance/tax deductions (pursuant to Greek Law)**
Report to:	**Dr Dimitrios Tzovaras CERTH/ITI**

Project Title: Automatic monitoring and detection of activities of daily living (ADLs) within Home Environments (in the context of the Marie Curie-ITN ACROSSING project in CERTH /ITI premises and in collaboration with AUTH or DMU University)

Objectives: Responding to the needs for patient (focusing on them with Dementia & Parkinson's disease) and elderly-dedicated environments, currently there is a strong focus on assisted living solutions and the development of more sophisticated monitoring systems in order identify and classify activities of daily living (ADL) and learn the habits of supervised subjects. Furthermore, because of the complexity of mental conditions (both in terms of their pathogenesis and the variety of resulting symptoms), comprehensive sensing approaches must be integrated that can cover and significant part of the user's behaviour and lifestyle.

Specifically, this project (as a continuation of other previous projects in CERTH/ITI (e.g. national project Ennoisis) will investigate the use of wireless acoustic and motion sensor networks for daily activity monitoring and automatic activity recognition within Smart Home Environments of elder patients. Therefore, a combination of sensors will be used to detect an individual's activities at home.

Thus, the ESR will develop a) a smart audio-based sensing network, b) acoustic signal processing methods and activity recognition algorithms, c) a novel automatic trajectory-based activity detection framework to recognize activity patterns and user profiles, d) associated technologies and a prototype for evaluation by real users.

Expected Results:

- A smart audio sensing prototype (integrated to a Socket and working together with the other integrated sensors)
- Acoustic signal processing methods and daily activity detection algorithms based on the combination of integrated sensors (acoustic, motion),
- A trajectory based activity pattern recognition framework with associated user modeling methods,
- Technologies and software prototype for demonstration.

Planned Secondments:

AKTIOS S.A, Greece, Universidad Politecnica De Madrid, Spain, De Montfort University, UK,

Research Fields

Engineering - Computer engineering

Eligibility criteria

Successful candidates must adhere to the following eligibility criteria

- At the time of recruitment by the host beneficiary (CERTH/ITI), the candidates must not have resided or carried out their main activity (work, studies, etc.) in the country of their host beneficiary (Greece) for more than 12 months in the 3 years immediately prior to their recruitment under the project. Compulsory national service and/or short stays, such as holidays, are not taken into account.
- At the time of recruitment by the host beneficiary (CERTH/ITI), the candidates should be in the first four years (full-time equivalent research experience) of their research careers. This is measured from the date when they obtained the degree which formally entitles them to embark on a doctorate.
- At the time of recruitment by the host beneficiary (CERTH/ITI), the candidates should have not been awarded a doctoral degree.

Experience for the position

Must
Engineering - Computer engineering Degree, Master degree on ICT related field

Knowledge on programming languages (C, C++), Be able to travel around Europe Research experience, Fluency in English, Experience in research publications Abstract analysis skill, Conceptual thinking

Desirable
Audio signal processing
Information retrieval with data mining & matching learning
Knowledge on sensor data acquisition
Experience working with IoT techniques
Experience working in multi-cultural environments.

Recruitment Process

- To apply, suitable candidates are requested to submit (in English):
  1. A Curriculum Vitae, including contact details,
  2. Scanned copies of the degree certificates, if available at the time of application,
  Note that the applications shall be submitted exclusively via email sending the requested documents to Dr. Dimitrios Tzovaras (dimitrios.tzovaras@iti.gr) and Dr. Votis Konstantinos (kvotis@iti.gr). Please also note that candidates should be willing to be contacted by phone during the entire selection process.
- **Application Deadline: 7th October 2016**

Programme Description

International mobility required ?	yes
Eligible destination country/ies for fellows	Greece
Eligibility of fellows: country/ies of residence	Any country
Eligibility of fellows: nationality/ies	Any nationality
Website of Fellowship Programme	http://www.acrossing-itn.eu

Fellowship's Details

Career Stage	Early stage researcher or 0-4 yrs (Post graduate)
Research Profiles	Early stage researcher
Employment contract with full social security	Yes
Total amount per fellowship per year	34,590 €
Currency	euro
Covers salary	yes
Covers travel and subsistence	yes
Covers research costs	yes
Maximum duration of fellowship	Up to 36 months