

SME RTD Partner Presentation

Shift2Rail Info Day on 2019 Call for Proposals

The Square, Brussels, 06/02/2019

Presenter: Mr. Harry Tsahalis

Email: htsahalis@paragon.gr

LinkedIn: <https://gr.linkedin.com/in/htsahalis>

Web: <https://ict2018.b2match.io/participants/230>

Profile



- Research & Technology Development SME (micro-SME) active in R&D and Commercial services.
- Based in Athens (EL), est. Y1995, active as an SME RTD partner in EC Framework Programme research projects from Framework Programme 4 - Horizon 2020.
- Active in a no. of research areas (participation (to date) to 30 EC research projects) in areas that include: Aeronautics (including Clean JTI) • ICT • Factories of the Future (FoF) • Energy & Environment • Security.
- Summary info on EC projects experience, expertise, examples of research derived applications:
 - <https://ict2018.b2match.io/participants/230>
- One of our commercial activities is the representation of industrial & scientific instrumentation manufacturers to industrial and academic markets. Our SME represents for over a decade a number of international manufacturers (sensors, daq/dsp, portable and remote measurement & analysis, actuation) from the EU and USA to markets in Greece and S.E. Europe.



Expertise areas + S2R '19 Main topics of interest

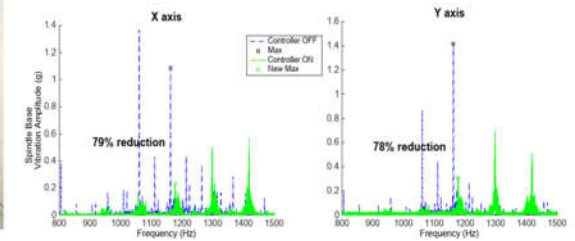
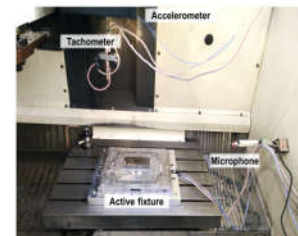
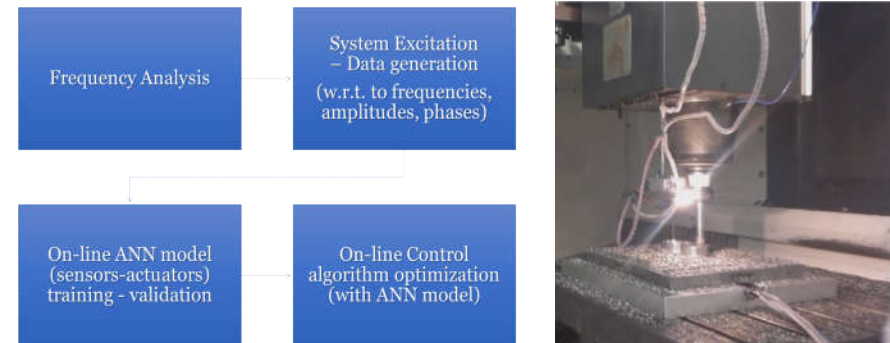
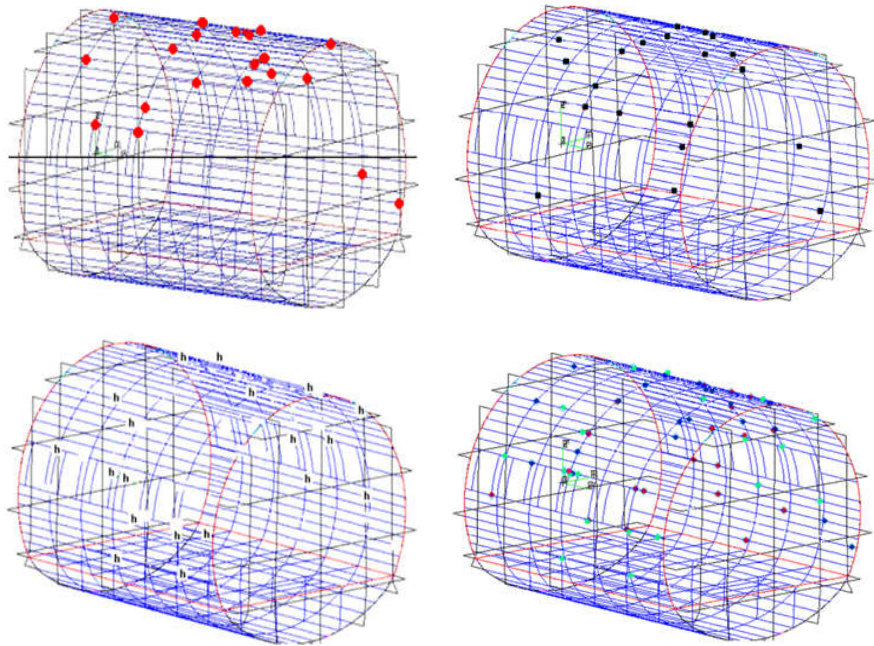


- Computational - Artificial Intelligence.
- Evolutionary Computation - Multi-objective Optimization.
- Multi-objective Optimization for Sensor - Actuator networks.
- Acoustics (incl. beamforming) & Vibration -related applications (measurement - processing - analysis - monitoring - detection - control - optimization).
- Active Vibration Control (AVC).
- Active Structural Acoustic Control (ASAC).
- Active Noise Control (ANC).
- Active Flow Control (AFC) | active aerodynamics.
- Structural Health Monitoring networks (SHM).
- Integrated -Simultaneously Optimized- Active Control/Monitoring networks | e.g., combined active vibration control + structural health monitoring.
- Multi-parameter Passengers / Crews Fatigue(Comfort) & Well-being (subjective + objective) modeling - simulation - monitoring - control applications.
- Centralized / De-centralized Fault Detection - Diagnostics applications (mechanical, electrical, electro-mechanical systems; in design, testing, on-line/off-line)
- **S2R-OC-CCA-01-2019:** Noise & Vibration, with heightened interest on 'New Technologies'.
- **S2R-OC-IP1-01-2019:** Advanced Car body shells for railways and light material and innovative doors and train modularity, with heightened interest on 'Structural Health Monitoring Systems' and 'Solutions for thermal and noise reduction'.
- **S2R-OC-IP1-02-2019:** Tools, methodologies and technological development of next generation of Running Gear, with heightened interest on 'Control technology'.
- **S2R-OC-IP5-01-2019:** Condition-based and preventive maintenance for locomotive bogie.
- **S2R-OC-IP5-02-2019:** Advanced obstacle detection and track intrusion system for autonomous freight train.
- **S2R-OC-IP3-01-2019:** Future traction power supply for railways and public transport.



Active Control / Monitoring Systems

- Model -based Active Control Systems (active vibration, structural acoustic, noise, flow control, active/passive SHM, and combined SHM/AVC systems).
- Non Model -based Active Control Systems (automated 'on-line' setup of active control systems, combination of ANNs + EAs).



Multi-parameter Passenger Fatigue & Well-being



- Method and Application (based on ANNs) facilitating modeling - simulation - processing - assessment of the combined impact of interior environmental conditions on passengers and/or crews comfort & well-being.
- Integration of a range of parameters:
 - Environmental parameters (Noise ▪ Vibration ▪ Psycho-acoustics ▪ Temperature ▪ Humidity ▪ Airflow ▪ Glare ▪ Pollutants ▪ Other).
 - Medical - Physiological parameters.
 - Psychological - Sociological parameters.
- Sensor -based applications (during actual revenue flights) and Design -based applications (environmental control systems - passenger impact simulation in product development - virtual design phase).

