### Contact details

<table>
<thead>
<tr>
<th>Name</th>
<th>Foundations and Applications of Advanced Software Technology – Research Group</th>
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<tbody>
<tr>
<td>Acronym</td>
<td>FAAST</td>
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<tr>
<td>Logo</td>
<td><img src="image" alt="FAAST Logo" /></td>
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<tr>
<td>Site</td>
<td><a href="http://users.utcluj.ro/~eneia/faast.htm">http://users.utcluj.ro/~eneia/faast.htm</a></td>
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### Areas of expertise

**Software Formal Methods**  
- Mathematically based techniques for design and verification of software systems and formal languages

**Natural Computing**  
- Methods inspired from nature for the development of novel problem-solving techniques (e.g. membrane computing, DNA computing); methods that employ natural materials (e.g. molecules, qubits) to compute

**Global Computing**  
- Models, semantics, logics and technologies for distributed and global computing  
- Image processing in global computing context

**Software Modeling and Software Solutions** for:  
- eBusiness,  
- eAdministration  
- eHealth  
- traffic and transportation for Smart Cities

### Team

Prof. Dr. Eng. Eneia Nicolae Todoran, Assoc.Prof.Dr. Paulina Mitrea, Eng. Simina Dorin

### Representative projects


**BETTY**, “Behavioral Types for Reliable Large-Scale Software Systems” - ICT COST Action IC1201 [http://www.cost.eu/domains_actions/ict/actions/IC1201](http://www.cost.eu/domains_actions/ict/actions/IC1201); Management Committee members for Romania: Prof.Dr. Gabriel Ciobanu, Prof.Dr. Eneia Nicolae Todoran (2012-2016)

**DFA@eInclusion**, “Design for All for e-inclusion” – FP7 project no. 033838, Coordinator: IFAC-CNR (Florence/Italy), subcontracting partner: UTCN; Scientific Responsible of the partner UTCN: Assoc.Prof. PhD. Paulina Mitrea (2008-2010)

**“Distributed System for Early Prevention, Monitoring and Treatment of the Cardio toxicity Induced by Chemotherapy and Radiotherapy in Oncologic Patients”** – PNII/IDEAS Project no. 1340/2009; UMF&UTCN interdisciplinary team; Assoc.Prof. PhD. Paulina Mitrea – Scientific Responsible (2008-2010)

Significant results

Articles in ISI rated journals and ISI conference proceedings, in the past 5 years:


Significant solutions:
Continuation semantics for concurrency, Denotational semantics for multiparty interaction, Denotational semantics for models of global computing, Denotational semantics for models of natural (membrane, DNA) computing

Products and technologies:
1. Prototype interpreter for object oriented programming with multiparty interaction in peer to peer systems
2. Prototype interpreter for mobile objects with multiparty interaction
3. Prototypes for medical image processing in global computing context
4. Communication prototypes for smart sensor networks

The offer addressed to the economic environment

<table>
<thead>
<tr>
<th>Research &amp; development</th>
<th>Formal design of reliable distributed software systems and programming languages</th>
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<tr>
<td>Consulting</td>
<td>Formal design of reliable distributed software systems and programming languages</td>
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<tr>
<td>Training</td>
<td><strong>Software Engineering basics</strong>: software development paradigms. requirements engineering, UML class diagrams and OO analysis, modeling interaction and behavior, architecting and designing software, software testing techniques and strategies, formal specification using Z  <strong>Advanced topics in Software Engineering and Programming Languages</strong>: formal methods, denotational and operational semantics, process algebras, type systems</td>
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