**I. Research Overview and Outcome**

**A. Introduction**

- The convergence of data, voice, and multimedia communication over digital networks resulted in a proliferation of communication technologies.
- Despite these new improvements, no ways exist to build customized new comm. services.
- The Communication Virtual Machine (CVM) project represents a paradigm shift in how new customized comm. services are conceptualized and realized. through a Communication Modeling Language (CML) and a model driven platform.

**B. Proposed problem**

- CML has been used for the high level spec. of user-centric communication services.
- CML 1.0 abstract syntax are formal specified but lacking a formal specification and validation of its static semantics and operational semantics.
- Kermeta, an executable metamodeling language, provides an integrated framework for engineering domain specific languages like CML.

**C. Methodology**

- Using Kermeta as an integrated metamodeling framework for specifying metamodel, actions, constraints and transformations of lang. like Communication Modeling Language (CML)
- Incremental language development
  - Start with basic language primitives
  - Iteratively add lang. constructs (workflow)
- Aspect Oriented Modeling
  - Model static constraints as aspects
  - Model execution behaviors as aspects

**D. Materialization Method**

- Building model loaders and simulators
- Transformations of models & semantics of CML
- Using Kermeta as an integrated framework for specifying CML metamodel, actions, constraints and transformations of lang.

**E. Engineering CML**

- Specifying CML static seman. via Kermeta Invariants
- Encoding CML operation semantics through model transformations via a state based approach
- Addressing concurrency issues of CML through interleaving semantics
- Building model loaders and simulators

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**F. Results**

- Have successfully validated the execution semantics of CML models through generating instances of the target language: executable communication control scripts
- A byproduct: the design and implementation of an interleaving concurrency framework for simulating concurrency in Kermeta

**G. Conclusion & Future Work**

- Using an integrated framework like Kermeta facilitates rapid validation & prototyping of CML
- The semantics specification of CML is sound and sufficient for automatic synthesis of user-centric communication services
- Using Aspect Oriented Modeling for specifying various aspects of model semantics like workflow and autonomic behaviors

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**II. International Experience**

- Learn to adapt to a changing environment and culture and to appreciate it meanwhile
- Learn to get out of the "comfort zone" and interact with people of different backgrounds leading to personal enrichment
- Understanding a different view of life: simple yet full lifestyle (good friends, fun and food) → Enjoy life via the simplest yet elegant ways: C'est la vie!

**Traveling**

- Enjoy life via the simplest yet full lifestyle (good friends, fun and food)

- Traveling around France and even Italy!

**Food and Wine**

- The French enjoy every bite of food and every sip of wine
- Paris: Fascinating and breathtaking sights, no wonder it is the No #1 tourist destination in the world!
- Venice: Sinking city? As long as there is Gondola boat, it will be fine!

**Our Team**

- Our Collaborators

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