Who We Are

IBM
Programming
Technologies

- Programming Technologies / IBM Research

- Lead Investigator: John Field

- Team:
  - Satish Chandra, Marco Pistoia (attending)
  - ~25 additional researchers

Our Expertise

- Language-based security
- Programming languages (X10, Thorn, Spade II)
- Performance optimization tools
- Bugfinding and verification tools
- Static and dynamic program analysis
- Concurrency synthesis and analysis
- Hardware/software interaction
- Real-time programming

Unique Qualifications and Capabilities

IBM
Programming
Technologies

- Extensive track record
  - developing algorithms and technology for program analysis, transformation, verification, and understanding
  - designing and implementing advanced programming models
- Practical tool building and technology transfer, including tools for
  - bug detection
  - security vulnerability scanning for web applications
  - performance tuning
  - concurrency analysis
  - code porting and migration
- Ability to turn research prototypes into robust products through partnerships with IBM development groups (Rational, Tivoli, Application Integration/Middleware, Lotus, …)
- Access to > 3000 experts in IBM Research
- Scientific contributions recognized in top conferences (PLDI, POPL, IEEE Oakland, ISSTA, ICSE, OOPSLA, ECOOP, VMCAI, …)
- Open source tools and libraries (WALA analysis toolkit, X10 language, …)
- Strong research relationships with top universities (Berkeley, Harvard, Cambridge, Purdue, Rutgers, Tel Aviv, …)

Partnerships

- Interested in forming partnerships with
  - Universities with complementary expertise
  - Other companies with
    - access to applications not typically seen by IBM
    - specialized technology (e.g., front ends for unusual languages)

IBM
Programming
Technologies

Contact Information

- John Field
- Research Staff Member / Manager
- Advanced Programming Tools Group
- jfield@us.ibm.com
- 914-784-6650
- Programming Languages and Software Engineering home:http://domino.research.ibm.com/comm/research.nsf/pages/r.plansoft.about.html
- Language-based Security home: http://domino.research.ibm.com/comm/research_projects.nsf/pages/labasec.index.html