SIGPLAN Officers

* Chair: Kathleen Fisher, AT&T
* Vice Chair: Chandra Krintz, UCSB
* Past Chair: Jack Davidson, Univ. Virginia
* Secretary: Eliot Moss, UMass
* Treasurer: Cristina Cifuentes, Sun Australia
* Koen DeBosschere, U Ghent. (PAC co-chair)
* Greg Morrisett, Harvard
* Steve Zdancewic, UPenn
* Ben Zorn, Microsoft (PAC co-chair, CACM NC chair)
Direct Member Benefits

- Reduced registration rates at SIGPLAN conferences
- Access to SIGPLAN materials in the ACM DL
- Subscription to SIGPLAN Notices (electronic or print)
- Annual CD with proceedings of SIGPLAN conferences/Notices
- Email newsletter with announcements of SIGPLAN events
- Eligibility for PAC grants (students, travel companions, int’l)
- Voting rights in SIGPLAN Elections
- Eligibility to serve as a SIGPLAN Officer
Community Benefits

- Conference sponsorship
  - ASPLOS, CGO, GPCE, Haskell, ICFP, ISMM, LCTES, OOPSLA, PLDI, POPL, PPDP, PPoPP, VEE, and many workshops.

- Awards
  - Lifetime Achievement, Service, Best PL Thesis, John Vlissides Award, Most Influential Paper for ICFP, OOPSLA, PLDI, and POPL

- Latex and Microsoft word templates for conference papers

- SIGPLAN Web Site

- Support for PL-related summer schools

- Support for Educators to attend SIGPLAN conferences
# Membership Fees

<table>
<thead>
<tr>
<th>Fiscal Year ’07</th>
<th>Print</th>
<th>Online</th>
</tr>
</thead>
<tbody>
<tr>
<td>Professional</td>
<td>$50</td>
<td>$25</td>
</tr>
<tr>
<td>Student</td>
<td>$40</td>
<td>$15</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Fiscal Year ’08</th>
<th>Print</th>
<th>Online</th>
</tr>
</thead>
<tbody>
<tr>
<td>Professional</td>
<td>$65</td>
<td>$25</td>
</tr>
<tr>
<td>Student</td>
<td>$40</td>
<td>$15</td>
</tr>
<tr>
<td><strong>Actual cost of direct benefits</strong></td>
<td><strong>$86</strong></td>
<td><strong>$24</strong></td>
</tr>
</tbody>
</table>

Direct benefits include: newsletters, mailed proceedings, annual CD, reduced registration rates, but not awards, summer schools, PAC funding, etc.
Membership Numbers

Number of Members

<table>
<thead>
<tr>
<th>Year</th>
<th>Professional</th>
<th>SIGPLAN</th>
<th>SIGMOD</th>
<th>SIGSOFT</th>
<th>SIGGRAPH</th>
</tr>
</thead>
<tbody>
<tr>
<td>FY 1990</td>
<td>12,000</td>
<td>11,000</td>
<td>10,000</td>
<td>9,000</td>
<td>8,000</td>
</tr>
<tr>
<td>FY 1991</td>
<td>11,000</td>
<td>10,000</td>
<td>9,000</td>
<td>8,000</td>
<td>7,000</td>
</tr>
<tr>
<td>FY 1992</td>
<td>10,000</td>
<td>9,000</td>
<td>8,000</td>
<td>7,000</td>
<td>6,000</td>
</tr>
<tr>
<td>FY 1993</td>
<td>9,000</td>
<td>8,000</td>
<td>7,000</td>
<td>6,000</td>
<td>5,000</td>
</tr>
<tr>
<td>FY 1994</td>
<td>8,000</td>
<td>7,000</td>
<td>6,000</td>
<td>5,000</td>
<td>4,000</td>
</tr>
<tr>
<td>FY 1995</td>
<td>7,000</td>
<td>6,000</td>
<td>5,000</td>
<td>4,000</td>
<td>3,000</td>
</tr>
<tr>
<td>FY 1996</td>
<td>6,000</td>
<td>5,000</td>
<td>4,000</td>
<td>3,000</td>
<td>2,000</td>
</tr>
<tr>
<td>FY 1997</td>
<td>5,000</td>
<td>4,000</td>
<td>3,000</td>
<td>2,000</td>
<td>1,000</td>
</tr>
<tr>
<td>FY 1998</td>
<td>4,000</td>
<td>3,000</td>
<td>2,000</td>
<td>1,000</td>
<td>0</td>
</tr>
</tbody>
</table>

SIGPLAN Today:
Professional: 2,135
Student: 159
<table>
<thead>
<tr>
<th>Finances</th>
<th>Budget FY09</th>
<th>Projected Budget FY08</th>
<th>FY08 to Apr 30</th>
<th>Actual FY07</th>
<th>Budget FY07</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-Conf. Rev. Digital Library</td>
<td>317,906</td>
<td>319,479</td>
<td>301,723</td>
<td>375,485</td>
<td>300,205</td>
</tr>
<tr>
<td></td>
<td>94,525</td>
<td>106,548</td>
<td>106,548</td>
<td>101,363</td>
<td>96,723</td>
</tr>
<tr>
<td>Conf. Revenue</td>
<td>1,571,787</td>
<td>1,452,321</td>
<td>1,153,111</td>
<td>1,514,339</td>
<td>1,818,784</td>
</tr>
<tr>
<td>Total Revenue</td>
<td>1,889,693</td>
<td>1,771,800</td>
<td>1,454,834</td>
<td>1,889,824</td>
<td>2,118,989</td>
</tr>
<tr>
<td>Non-Conf. Exp.</td>
<td>522,914</td>
<td>521,371</td>
<td>305,932</td>
<td>441,492</td>
<td>433,332</td>
</tr>
<tr>
<td>Conf. Expense</td>
<td>1,558,906</td>
<td>1,413,263</td>
<td>1,085,156</td>
<td>1,292,849</td>
<td>1,812,418</td>
</tr>
<tr>
<td>Total Expense</td>
<td>2,081,820</td>
<td>1,934,634</td>
<td>1,391,088</td>
<td>1,734,341</td>
<td>2,245,750</td>
</tr>
<tr>
<td>Net</td>
<td></td>
<td></td>
<td>120,350</td>
<td>260,915</td>
<td>-36,761</td>
</tr>
<tr>
<td>Fund Balance</td>
<td>2,328,131</td>
<td>2,257,147</td>
<td>2,300,592</td>
<td>2,257,147</td>
<td></td>
</tr>
<tr>
<td>Required Fund Bal.</td>
<td>785,269</td>
<td>757,990</td>
<td>757,990</td>
<td>806,012</td>
<td></td>
</tr>
</tbody>
</table>
Awards
http://www.sigplan.org/awards

* PL Achievement: Barbara Liskov
* Distinguished Service: Michael Burke
* 2006 Dissertation: Xiangyu Zhang
* 2007 Dissertation: Swarat Chaudhuri
* Most Influential Paper from 10 years previously: ICFP, OOPSLA, PLDI, POPL
* Newly created John Vlissides Award for “Doctoral student participating in the OOPSLA Doctoral Symposium showing significant promise in applied software research”

Nominations for 2009 Achievement and Service Awards due Jan 5, 2009.
Recent Activities

* Conference Report
* Changes to SIGPLAN Notices
* PAC Grants
* CACM Nomination Committee
* PL Curriculum Workshop
Oversees organization of meetings:
14 conferences and 19 workshops this year.

Conference location selection
  * General and program chair selection
  * Program committee selection
  * Budget approval
  * Resource for program and general chairs

Repository for common knowledge.

Coordinates approval for new meetings.
<table>
<thead>
<tr>
<th>Conferences/Symposia</th>
<th>Workshops</th>
<th>&quot;In cooperation&quot;</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>AADebug (SigSOFT)</strong></td>
<td><strong>CUFP</strong></td>
<td><strong>ANTLR</strong></td>
</tr>
<tr>
<td><strong>ASPLOS (SigARCH, SigOPS)</strong></td>
<td><strong>Erlang</strong></td>
<td><strong>AOSD</strong></td>
</tr>
<tr>
<td><strong>CGO (SigMICRO, IEEE)</strong></td>
<td><strong>FDPE</strong></td>
<td><strong>ECOOP</strong></td>
</tr>
<tr>
<td><strong>GPCE</strong></td>
<td><strong>FOOL/WOOD</strong></td>
<td><strong>ICSE</strong></td>
</tr>
<tr>
<td>Haskell</td>
<td><strong>Merlin</strong></td>
<td><strong>JICC</strong></td>
</tr>
<tr>
<td><strong>ICFP</strong></td>
<td><strong>ML</strong></td>
<td><strong>LDTA</strong></td>
</tr>
<tr>
<td><strong>ISMM</strong></td>
<td><strong>PASTE (SigSOFT)</strong></td>
<td><strong>MASPLAS</strong></td>
</tr>
<tr>
<td><strong>LCTES (SigBED)</strong></td>
<td><strong>PEPM</strong></td>
<td><strong>PADL</strong></td>
</tr>
<tr>
<td><strong>OOPSLA</strong></td>
<td><strong>PLAN-X</strong></td>
<td><strong>SIGAda</strong></td>
</tr>
<tr>
<td><strong>PLDI</strong></td>
<td><strong>PLAS</strong></td>
<td></td>
</tr>
<tr>
<td><strong>POPL (SIGACT)</strong></td>
<td><strong>Scheme</strong></td>
<td></td>
</tr>
<tr>
<td><strong>PPDP</strong></td>
<td><strong>Space</strong></td>
<td></td>
</tr>
<tr>
<td><strong>PPoPP</strong></td>
<td><strong>Transact</strong></td>
<td></td>
</tr>
<tr>
<td><strong>VEE (SIGOPS, USENIX)</strong></td>
<td><strong>WCFLP</strong></td>
<td></td>
</tr>
</tbody>
</table>

Conferences in bold have more than 100 participants.

Co-located meetings share color-coding.
Health of Major Conferences

* Generally, conferences are doing well.
  * Attendance holding steady; proportion of students is increasing.
  * Most meetings break even or show a profit.
  * OOPSLA update.
  * Technical program very strong
  * Attendance seems to be stabilizing.
  * POPL growing at fastest rate
## PLDI Statistics

<table>
<thead>
<tr>
<th>PLDI</th>
<th>Attendance</th>
<th>Submitted</th>
<th>Accepted</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>2007</td>
<td>334</td>
<td>178</td>
<td>45</td>
<td>San Diego (FCRC)</td>
</tr>
<tr>
<td>2006</td>
<td>330</td>
<td>174</td>
<td>36</td>
<td>Ottawa</td>
</tr>
<tr>
<td>2005</td>
<td>293</td>
<td>137</td>
<td>28</td>
<td>Chicago</td>
</tr>
<tr>
<td>2004</td>
<td>246</td>
<td>127</td>
<td>25</td>
<td>Washington</td>
</tr>
<tr>
<td>2003</td>
<td>347</td>
<td>131</td>
<td>28</td>
<td>San Diego (FCRC)</td>
</tr>
<tr>
<td>2002</td>
<td>235</td>
<td>169</td>
<td>28</td>
<td>Berlin</td>
</tr>
<tr>
<td>2001</td>
<td>311</td>
<td>144</td>
<td>30</td>
<td>Snowbird</td>
</tr>
</tbody>
</table>
## POPL Statistics

<table>
<thead>
<tr>
<th>Year</th>
<th>Attendance</th>
<th>Submitted</th>
<th>Accepted</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>2008</td>
<td>318</td>
<td>212</td>
<td>35</td>
<td>San Francisco</td>
</tr>
<tr>
<td>2007</td>
<td>250</td>
<td>200</td>
<td>36</td>
<td>Nice France</td>
</tr>
<tr>
<td>2006</td>
<td>264</td>
<td>167</td>
<td>33</td>
<td>Charlestown</td>
</tr>
<tr>
<td>2005</td>
<td>212</td>
<td>172</td>
<td>31</td>
<td>Long Beach</td>
</tr>
<tr>
<td>2004</td>
<td>202</td>
<td>176</td>
<td>29</td>
<td>Venice</td>
</tr>
<tr>
<td>2003</td>
<td>182</td>
<td>126</td>
<td>24</td>
<td>New Orleans</td>
</tr>
<tr>
<td>2002</td>
<td>219</td>
<td>128</td>
<td>28</td>
<td>Portland</td>
</tr>
</tbody>
</table>
## ICFP Statistics

<table>
<thead>
<tr>
<th>ICFP</th>
<th>Attendance</th>
<th>Submitted</th>
<th>Accepted</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>2007</td>
<td>160</td>
<td>119</td>
<td>32</td>
<td>Freiburg, Germany</td>
</tr>
<tr>
<td>2006</td>
<td>300</td>
<td>76</td>
<td>24</td>
<td>Portland</td>
</tr>
<tr>
<td>2005</td>
<td>187</td>
<td>87</td>
<td>26</td>
<td>Estonia</td>
</tr>
<tr>
<td>2004</td>
<td>167</td>
<td>80</td>
<td>21</td>
<td>Snow Bird</td>
</tr>
<tr>
<td>2003</td>
<td>153</td>
<td>99</td>
<td>23</td>
<td>Uppsala</td>
</tr>
<tr>
<td>2002</td>
<td>195</td>
<td>76</td>
<td>24</td>
<td>Pittsburgh</td>
</tr>
<tr>
<td>2001</td>
<td>167</td>
<td>66</td>
<td>18</td>
<td>Florence</td>
</tr>
<tr>
<td>OOPSLA</td>
<td>Attendance</td>
<td>Submitted</td>
<td>Accepted</td>
<td>Location</td>
</tr>
<tr>
<td>--------</td>
<td>------------</td>
<td>-----------</td>
<td>----------</td>
<td>------------------------</td>
</tr>
<tr>
<td>2007</td>
<td>1225</td>
<td>156</td>
<td>33</td>
<td>Montreal</td>
</tr>
<tr>
<td>2006</td>
<td>1178</td>
<td>157</td>
<td>27</td>
<td>Portland</td>
</tr>
<tr>
<td>2005</td>
<td>1081</td>
<td>142</td>
<td>29</td>
<td>San Diego</td>
</tr>
<tr>
<td>2004</td>
<td>1172</td>
<td>173</td>
<td>27</td>
<td>Vancouver</td>
</tr>
<tr>
<td>2003</td>
<td>948</td>
<td>147</td>
<td>26</td>
<td>Anaheim</td>
</tr>
<tr>
<td>2002</td>
<td>1601</td>
<td>125</td>
<td>25</td>
<td>Seattle</td>
</tr>
<tr>
<td>2001</td>
<td>1236</td>
<td>145</td>
<td>27</td>
<td>Tampa (9/11 &amp; Anthrax)</td>
</tr>
</tbody>
</table>
Help for Meeting Organizers

* Program chair support
  * http://www.sigplan.org/programchairs.htm
  * Program committee formation, plagiarism policy, CFP/web site help, submission software (START), PC meeting suggestions, list of responsibilities

* General chair support
  * http://www.sigplan.org/guidelinesforthechair.htm
  * Locations, hotel contracts, ACM approval process, budget formation, publication (DL) and proceedings, list of responsibilities
Current Issues

* Author response well-received and heavily used

* Efforts to accept more papers:
  * Shortening talks (PLDI, POPL)
  * Lengthening the conference (ICFP, POPL)

* Experiments in “Double-blind” reviewing
  * Mixed experiences, much more work for Prog. Chairs
  * Significant support for it however

* Increasing support and activities for students

* TOPLAS evolution
Recent Activities

* Conference Report
* Changes to SIGPLAN Notices
* PAC Grants
* CACM Nomination Committee
* PL Curriculum Workshop
In January, the SIGPAN EC approved a change to the content of regular NOTICES issues.

Previously: Notices published unsolicited manuscripts deemed relevant to the SIGPLAN community (not peer reviewed), which was appropriate in an era prior to the web.

Notices' content has shifted so the benefit matches the cost:

- Regular issues will be dedicated to raising the community's awareness of SIGPLAN conferences, symposia, and workshops.
- Notices will publish
  - Abstracts of papers
  - Some supplementary material for meetings with 100% SIGPLAN sponsorship
Supplementary Content

Examples:
- One or two "best papers," as chosen by workshop participants
- Selected papers chosen by the program committee
- A blog or other commentary about the event written by a workshop participant

To date:
- TRANSACT 2008 (abstracts plus a selected paper)
- PLAS 2008 (abstracts plus 2 best papers & survey by co-chairs)
- PL Curriculum Workshop proceedings

Notices remains a newsletter that will facilitate the dissemination of SIGPLAN events, activities, and information relevant to the SIGPLAN community.
Recent Activities

* Conference Report
* Changes to SIGPLAN Notices
* PAC Grants (see separate slide deck)
* CACM Nomination Committee
* PL Curriculum Workshop
CACM Research Track
Nominating Committee

Ben Zorn
June 2008
CACM Reorganized in 2007 – new format July 2008

- Moshe Vardi, EIC
- Focus on highlighting technical contributions
- “Research Track” includes best papers from ACM conferences
- SIGs asked to put together a process of nominating papers for consideration by CACM Research Track board

- February 2008: Kathleen authored SIGPLAN proposal
- March 2008: Moshe okayed proposal, Ben agreed to chair committee
Goal & Process

**Goal** – to submit to CACM editorial board papers from SIGPLAN conferences of appropriate quality and of broad interest to the CACM readership

**Approach** – standing SIGPLAN committee considers candidates and nominates best

Candidate papers come from two sources

- **Committee candidates**: standing committee suggesting possible papers (conferences have representatives on the committee)
- **Community candidates**: any SIGPLAN member can propose a paper for consideration by the standing committee

Working on Web site for submitting both kinds of papers
Nomination Process

* Virtual meeting 3 times/year
* Consider new candidates, tabled old candidates
* Initially some backlog due to 3-year window
* Attempt to have consensus to nominate
* Likely all papers will be high quality
* Attention to fit for CACM will be part of decision
* How many papers candidates/nominations?
* Perhaps 50 papers in CACM total
* 10% from SIGPLAN likely goal (20% tops) => 5-10 papers/year
* Conflict of interest process outlined in proposal
* Nominated papers published on SIGPLAN site
Committee Composition

* 10 people representing the various constituencies
  
  * Member of EC (chair)               Ben Zorn
  * SIGPLAN chair                     Kathleen Fisher
  * Past SIGPLAN chair                Jack Davidson
  * POPL delegate                    TBD
  * PLDI delegate                    Vivek Sarkar
  * OOPSLA delegate                  TBD
  * ICFP delegate                    TBD
  * PPDP/GPCE/Haskell delegate       Julia Lawall
  * PPoPP/VEE/ISMM delegate          Hans Boehm
  * LCTES/ASPLOS/CGO delegate        David August
  
* Terms 2 years (staggered to start)
Call to Action

- Think about papers to nominate
- Talk to the conference representatives on the committee
- Think about additional candidate papers to nominate
- Web submission site available from http://sigplan.org soon
Recent Activities

* Conference Report
* Changes to SIGPLAN Notices
* PAC Grants
* CACM Nomination Committee
* PL Curriculum Workshop
ACM SIGPLAN
Workshop on Programming Language Curriculum (PLC)

- Held May 29 & 30 at Harvard
- Lead by Kathleen Fisher and Chandra Krintz
- Motivation: Initiate discourse on the role of programming languages in the undergraduate curriculum
- Sponsored by NSF, NSA, and SIGPLAN
- 30 participants
  - 16 steering committee members, 13 authors of selected whitepaper contributions, NSF and ACM Ed Board representatives
Participants

Eric Allen (Sun Microsystems)
Mark Bailey (Hamilton College)
Ras Bodik (UC Berkeley)
Kim Bruce (Pomona College)
William Cook (UT Austin)
Matthias Felleisen (Northeastern Univ.)
Kathleen Fisher (AT&T Research)
Kathi Fisler (WPI)
Daniel Friedman (Indiana Univ.)
Stephen Freund (Williams College)
Sol Greenspan (NSF)
Robert Harper (CMU)
Michael Hind (IBM Research)
John Hughes (Chalmers)
Chandra Krintz (UC Santa Barbara)
Shriram Krishnamurthi (Brown)

Jim Larus (Microsoft Research)
Doug Lea (SUNY Oswego)
Gary Leavens (Univ. of Central Florida)
Greg Morrisett (Harvard Univ.)
Benjamin Pierce (Univ. of Pennsylvania)
Lori Pollock (Univ. of Delaware)
Stuart Reges (Univ. of Washington)
John Reynolds (CMU)
Martin Rinard (MIT)
Olin Shivers (Northeastern Univ.)
Peter Sestoft (ITU)
Mark Sheldon (Wellesley College)
Larry Snyder (Univ. of Washington)
Franklyn Turbak (Wellesley College)
Mitchell Wand (Northeastern Univ.)
Mission Statement

• Explosive growth in CS in general and PL in particular
  • Internet, multi-core, managed runtime systems, etc.

• Most PL curricula have not kept pace
  • Some curricula no longer include a PL course at all
  • Outdated concepts, the role/importance of PL questioned
  • ACM/IEEE curriculum only minimally covers PL concepts

• Need to consider as a community

  • WHY PL should be included in the CS curriculum
    • Clear articulation for non-PL academics of why every computer science undergraduate should have a solid PL knowledge base

  • WHAT topics and concepts should be taught
    • Broad audience, many constraints, range of career paths and goals

  • HOW it should be taught
    • Recommended practices for range of venues, audiences, constraints
Goals of the PLC Workshop

• Take ownership of the role of PL in our curricula

• Provide a venue to initiate discussion on the **What**, the **Why**, and the **How**

• Produce report to initiate community discourse, feedback, and on-going participation, containing:
  • Accepted whitepapers
  • Outcomes from workshop discussions
    • The Why
    • The What
    • And initial ideas on the How
  • To be published in SIGPLAN Notices November’08 issue
  • To be made available for community contribution
    • On the SIGPLAN webpage in September 2008
Scope

The focus of the workshop was on undergraduate PL curriculum.

Given the limited time frame, we did not consider curricular questions concerning compilers, software engineering, and other related fields except as they directly relate to PL curriculum.

Workshop participants felt these other areas should be considered as well in the future.
The WHY: Students

- Address misconceptions & explore benefits of studying PL

**Misconceptions**
- Programming languages are boring
- Learning one language is all I need
- I can program in a language, so I know all I need to about PL
- I only care about one domain
- Imperative and object-oriented languages are the best/only models

**Benefits**
- How to use hot languages without getting burned (avoid pitfalls)
- More productive problem recognition, conception, and solutions
- Make your own language: DSLs as a way of structuring code.
- Job satisfaction and efficacy in the LONG term
  - Make efficient use of whatever comes next
  - Future languages will be built out of intellectual building blocks
The WHY: Faculty

• **Misconceptions**
  • I never took PL and never needed it
  • Computing advances all come from new algorithms and Moore’s law
  • PL is irrelevant: popular languages not designed by PL people
  • No general principles; no intellectual depth
  • Having multiple languages is bad -- we need one unifying one

• **Benefits**
  • Many foundational concepts can be covered in a PL course
    • Central to computer science and to core reasoning skills
  • Worldwide challenge: parallel and concurrent execution
  • High impact: Web 2.0, map/reduce, code analysis
  • Avoid software errors, security holes, performance bottlenecks
  • Provides new ways to reason about problems/identify solutions
  • Over career, students will use many different languages
    • Multiple languages commonly used in a single system
The WHAT (All Undergrads)

All undergraduates should be able **ANALYZE** and **APPLY**

- Naming (binding, scope)
- Control (recursion, iteration, dyn. dispatch, exceptions, continuations)
- Static/dynamic semantics
  - Simple type systems, parametric polymorphism
  - Grammars (RE, CFG)
  - Static and dynamic typing
  - Invariants (loop, data structure)
- Modularity and abstraction
  - Procedures
  - Compositionality, information hiding, classes
- Objects, state, mutation
- Higher-order functions, functional programming, immutability
- Runtime implementation (stacks, tail call, memory, GC)
  - Simple cost models (time/space complexity)
- Concurrency, parallelism
- Symbolic computation (programs as data)
The WHAT (PL Class)

- **UNDERSTAND, ANALYZE, and APPLY** core concepts in PL
  - Finite/infinite data structures, functions, control, concurrency, parallelism, state, modularity/interfaces, naming, cost models, laziness, monads
  - Models of computation
    - lambda calculus, FSAs, PDAs, relational calculus, Actors
  - Static and dynamic semantics
    - concrete/abstract syntax, type systems, transition systems, specifications
- **Know how to SYNTHESIZE** into languages...
  - OO, functional, logic/constraint programming, DSLs
- **And their USE in systems**...
  - Unix pipes, plan 9, TeX, nonces, modeling business process, network protocols, OS schedulers, map/reduce, grep, web services, algorithmic analysis, tools to check systems
- **Know how to IMPLEMENT** these concepts...
  - interpreter, type checker, parser, translator, analysis tools
The HOW

• Some ideas for reaching every student:
  • Improve PL content in CS1/CS2 intro courses
  • Add CS3: “Advanced Programming Techniques”
  • Integrate PL topics with other courses:
    Web Services (continuations, multiple languages), SE (modularity, specs), Computation (FSA, PDA, lambda), Language implementation (vms, compilers, interpreters), Systems (concurrency, naming, transactions)
  • Offer exciting PL Elective course.
The HOW: Improving CS1/CS2

Proposed “revenue neutral” change to required hours in the Computing Curriculum 2001 core:

http://www.sigcse.org/cc2001/cs-overview-bok.html#BOKTable

<table>
<thead>
<tr>
<th>Affected Knowledge Units (of 59 in PF/PL)</th>
<th>Current</th>
<th>Proposed</th>
</tr>
</thead>
<tbody>
<tr>
<td>PF4 Recursion</td>
<td>5</td>
<td>2</td>
</tr>
<tr>
<td>PF5 Event-driven programming</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>PL1 Overview of PL</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>PL2 Virtual Machines</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>PL3 Language Translation</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>PL6 Object-oriented programming</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>PL7 Functional Programming</td>
<td>0</td>
<td>10</td>
</tr>
<tr>
<td><strong>Total Number of Hours</strong></td>
<td><strong>24</strong></td>
<td><strong>24</strong></td>
</tr>
</tbody>
</table>
Strategies

- Develop clear and convincing WHY materials.
- Develop and document PL community consensus on WHAT/HOW
- Work to influence the ACM/IEEE curriculum
- Constitute a SIGPLAN Education board
  - Members interact with ACM/IEEE Ed boards
  - Solicit community white papers on what/why/how
  - Monitor and moderate improvements to the PLC report on web
  - Highlight good curricula, course materials, and textbooks.
Call for Feedback & Participation

- Important, high-impact effort
  - Will not be successful without broad community involvement

- How to get involved
  - Give us your feedback here
  - Attend BOF session at major SIGPLAN conferences
  - Provide feedback via the SIGPLAN PLC webpage
    - Report will be posted in September
  - Inform and involve others
  - Contribute to SIGPLAN Educational Board (forming soon)
  - Organize WPLC in ’09 and beyond

- Contact Kathleen or Chandra with feedback or to volunteer
  {chair_sigplan, vc_sigplan}@acm.org
Comments? Questions? Concerns?