FACULTY ACTIVITIES REPORT

CUMULATIVE

NAME: Richard John Botting **FROM: September 26th 2001**

TO: September 8th 2006

COLLEGE: Natural Science **DEPARTMENT: Computer Science**

I. TEACHING

A. Teaching and Instructionally Related Assignments

1. Courses Taught one or more times, Sep 2001 - Aug 2006

CS201 Computer Science I [http://www.csci.csusb.edu/dick/cs201] [item 471]
CS202 Computer Science II [http://www.csci.csusb.edu/dick/cs202] [item 362, 365]
CS320 Programming Languages [http://www.csci.csusb.edu/dick/cs320] [item 369, 415, 470]
CS330 Data Structures [http://www.csci.csusb.edu/dick/cs330]
CS372 Computers in Organizations [http://www.csci.csusb.edu/dick/cs372]
CS375 Requirements Analysis [http://www.csci.csusb.edu/dick/cs375]
CS488 Ethics and Professionalism [http://www.csci.csusb.edu/dick/cs488]
CS489 Senior Seminar [http://www.csci.csusb.edu/dick/cs489]
CS546 Introduction to Theory of Computation [http://www.csci.csusb.edu/dick/cs546]
CS556 Introduction to Formal Methods, Models & Languages [http://www.csci.csusb.edu/dick/cs556]
CS620 Programming Language Theory [http://www.csci.csusb.edu/dick/cs620]
CS646 Theory of Computation [http://www.csci.csusb.edu/dick/cs646]
CS656 Formal Methods, Models & Languages [http://www.csci.csusb.edu/dick/cs656]

2. Other

CS482 Senior Projects (BA)
Walter Achramowitz [item 528]

CS575 Internships
Sherry Liu at Disney [item 323]

CS595/CS695 Independent Studies
John Butterfield's celebration of three American Composers [item 312]
Rick Bruner's study of the difference between UML 1.5 and UML2.0 [item 424]
David Nimri "Ethics and Professionalism" (= CS488)
Paulo Laguna's study of Agile Data Base Management
Paul Conrad's (Graduate) study of PHP[http://www.csci.csusb.edu/dick/samples/php.html]

CS690 Masters Projects & CS699 Masters Thesis
Advised -- 13 completed, 2 in progress.
Completed: Yuwen Deng [item 311], Neeta Reddi [item 335], Chen-Hsiu Lee [item 368], Chie-Chou Chou [item 409], Angela Wang "Minesweeper" [item 430], Rohini Reddy [item 436], Cynthia Farqhar (UML) [item 455], Humaira Rahim [item 458], Yin-Wei Yang [item 465], Kevin Gonzago HAZWEB[item 403, 468], Raul Rivas [item 490], Sirisha Vadaparty [item 508],Paul Conrad (PSP) [items 523]
In Progress: Yibin Jiang [item 334], Suneetha Chinmurthi

On Committee -- 24 completed 16? in progress.
Completed: Brighu Celly [item 333], Sumit Imsukri [item 358], Avani Patel [item 372], Jesus Torres-Garcia [item 392], Chih-Wen Hsiao [item 399], Krishna Tummeti [item 400], Rohit Chavan [item 406], Meng-Hsi Tsai [item 408], Ying-Qun Wang [item 413], Ching-Ling Yang [item 420], David Delong [item 421], Kevin Sullivan [item 422], Elrarith Elrufaie [item 423], Tejswi Srinivas [item 429], Chaomei Liu [item 439], Hao Jia [item 445],

Feng-Chun Lung [item 451], Andrew Chang [item 453], Geraldo Sotelo Garcia [item 489], Wen-Yi Shih [item 501], Ming-Tse Chen [item 502], Abdul Muqtada [item 503], Sandy Dou [item 507], ChuanChe Lee [item 534]

In Progress: My records show 16 but some these may be inactive.

B. Development of New Courses & Programs &/or Innovative Approaches

Innovations (1) Developed a web site for **every course**-- see list of classes above. Each is the control center for the learning/teaching experience. (2) I invented the idea of a course web log to record changes and significant events and deadlines. (3) I changed the scheduling for CS320 so that each discussion/lecture session is immediately followed by a one hour lab -- this reduces scheduling conflicts, reinforces learning better, rationalizes the schedule, and means we don't work as late into the night in evening classes. (4) In the Ethics class I introduced a secure way of posting grades. This was presented at ACM SIGCSE 2005 [item 446]. I use it in all my classes [item 471]. (5) I experimented with a student driven class meeting format where students hand in or submit questions on the assigned reading at the start of the class [item 512]. These are then recorded in the web page for the class. This worked well in CS201 [item 471], CS202, CS372, CS375, CS546, and CS656 but not CS620.

New Courses. (1) The two Formal Methods courses CS556 and 656 were taught for the first time in Winter 2001. (2) I designed CS372 and CS375 for the new BA degree and taught them for the first time in Fall 2003 [item 390] and Winter 2004 respectively. (3) I taught the pre-existing computability theory classes CS546 and CS646 for the first time in Spring 2006.

Curriculum I continued to work on the development of the BA degree until 2005[items 306, 309].

C. Participation in conferences and seminars on instruction, special preparation for courses and other activities.

(1) I worked with Rational (now IBM) on the SEED partnership [item 348]

(2) I attended local meetings on teaching and learning [items 356, 396, 401, 482, 483]

(3) I attended online workshops on novel teaching/learning technology [items 416, 448]

(4) I participated in ACM SIGCSE 2005 [item 446].

D. Other Information...

(1) I was in "Who's Who among America's Teachers" because I was nominated for the CSUSB Outstanding Professor Award [item 404]. This happened in the last evaluation period as well.

(2) I was nominated for the CSUSB Golden Apple Award 2003-04 [item 376]

(3) My SETEs are at least at the CNS average and often above it. They appear to be better than the department average as well [items 386, 427, 470, 477, 535]. Students often thank me for my teaching and help [items 313, 366, 411, 414, 444, 447, 459, 467, 472, 480, 495]

(4) I attend the annual "Algorithma" presentations in CS455 [item 324] and student orientations[item 364].

(5) I usually have about 1 course of assigned time per quarter for research, advising, and/or innovation [items 407, 418, 450, 529]

(5) CNS Outstanding Professor for Teaching 2005-2006 [items 519, 525] .

II. PROFESSIONAL ACTIVITIES

Introduction

I study the theory and practice of software development [http://www.csci.csusb.edu/dick/research.html]. In the 2001-2006 period I solved a model of debugging and uncovered many unexpected things in the 2.0 release of the UML [items]. I continued to use and evolve my *MATHS language*.[http://www.csci.csusb.edu/dick/maths/] on the WWW. Most of my web site is now uses it. My personal *annotated bibliography of software development* (using MATHS) now has over 4,199 items. The whole web site and each part of is now searchable. I get at least one contribution or query via this web site each month. Throughout this period I published about one review every three months in the "Computer Reviews" plus reviews for IEEE and ACM conferences, etc. .

Memberships

I am a member of Sigma-Xi [item 316], the IEEE Computer Society [items 410, 515], the IEEE Technical committee on Software Engineering(TCSE) [items 338, 435], the Association for Computing Machinery (ACM) [items 320, 460], and ACM Special interest groups in Software Engineering (SIGSOFT) and Computer Science Education (SIGCSE). As part of SIGCSE, I am on the math-thinking mailing list [items 337, 340, 497].

Detailed Activities

(1) I **worked as a reviewer** on the IEEE Software Engineering Body of Knowledge (SWEBOK) [items 303, 383], IEEE Software Magazine [items 314, 363], IEEE Computer Magazine [items 336, 353]

(2) I **consulted** with the following publishers over new books: Springer Verlag [item 304], John Wiley [item 307], Morgan Kaufman [item 457], Prentice Hall [item 520]

(3) **Reviewed papers** for the ACM Symposium on Applied Computing [items 305, 352]

(4) I **monitor software practice** via magazines like Dr. Dobbs, Software Development, and the UNIX Review magazines [item 310] and by contacts with alumni [item 466]. I've also studied the internal usage of UML in the department.

(5) **Solved a stochastic model of debugging**. I presented this result at
- (5a) CSUSB [item 317],
- (5b) UC Santa Barbara [items 318], and
- (5c) the international SCI conference [items 344, 350]. This was supported by CSUSB [item 321].

A further development of the theory was rejected by the IEEE Transactions on Software Engineering [item 351].

(6) I have had **published many reviews** of papers and books in "Computer Reviews" -- the premier journal reviewing the computer science area [items 328, 329, 354, 357, 367, 371, 377, 380, 391, 393, 395, 398, 402, 412, 419, 428, 433, 437, 438, 461, 478, 481, 484, 491, 500, 526 , 530, 536]. A complete list can be found on their web site [item 532]. I have also assisted the debugging of their web site [items 331, 361, 378, 434, 456]. I have become a "Featured Reviewer" [Item 476, 532]

(7) I corrected Michael A Jackson's definition of "sibling" [item 345].

(8) I was an **expert witness** for "Evident Data" in a matter of breach of copyright [item 355]

(9) I **presented a faculty seminar** on Gardner's theory of object-oriented inheritance [item 379].

(10) I **improved my web site**'s content, organization, and linkages. User reactions provide evidence that the work attracts international interest [item 381, 384, 431, 440, 464, 469, 474, 486, 514, 516, 517, 537, 538].

(11) My searchable online **bibliography of software development** -- the soundest practice and the most useful

theory --continued to grow. Neeta Reddi [item 335] explored using Java applets. I moved on from CGIs to PHP in 2004-2005. In 2006, I started to record new items in my main web log prior to filing them in the data base.

(12) I developed some secure ways to post grades and **presented** them as part of a paper at ACM SIGCSE's conference 2005 [item 446, 452, 492]

(13) Presented a joint faculty seminar with Dr. K Voigt on **Sudoku** [item 487][JAR #1].

(14) I made a detailed study (with students Rick Bruner [item 424] and Cynthia Farquhar [item 455]) of the new version of the **Unified Modeling Language (UML2.0)** [item 424, 455].

(14a) The work was **presented locally** [item 463] and to the NSF site visit team [item 390a][JAR #2]

(14b) I published **chapter in a book** showing how UML 2.0 fits with SSADM [item 475].

(14c) **IEEE Transactions on Software Engineering** published my comment on the UML State Diagrams [item 485, 492].

(14d) I presented at a **faculty seminar** on an ambiguity in the UML2.0 [item 518].

(14e) **IEEE Computer Magazine** published my letter based on Use Cases and DFDs [item 539].

(15) Throughout the 5 year period I made improvements to the design of my **MATHS language** and to the **tools** that I use to render it for the web. I discovered that it made a simple tool for web-logging. In 2005 and 2006 I focused on logic [item 537] plus proofs [item 474] and constructions (Euclid, Pappus, ..., Polya)(http://csci.csusb.edu/dick/maths/logic_20_Proofs100.html).

Work in progress

(1) I **submitted an article** on the ambiguity in the UML2.0 [item 518] plus some proposed solutions to IEEE Computing Magazine [item 511]. This is undergoing peer review.

(2) I plan to put together a paper targeting the IEEE Trans on Software Engineering based on my research into the unexpected features of UML 2.0. It will contain most of the results referred to here plus others.

(3) I plan to explore more stochastic and dynamic processes and the formulation of causal statements in logic.

(4) I also plan to continue maintaining and extending my web site on software development processes, methods, and technology. This includes developing my MATHS language, samples of its use, and its tools.

(5) I have long term plans for improving my bibliographic search engine.

III. SERVICE

A. Community Service

(1) I maintain the "Unofficial Inland Symphony Association" Page on the world wide web: http://www.csci.csusb.edu/dick/symphony.html. [items 339, 394, 527]

(2) Aug 2002, 2003, 2004: I judged Desk-Top Publishing submissions to the Los Angeles County Fair [items 346, 387, 432].

(3) My web site attracts questions and searches from all over the world [items 381, 499, 538]. I reply to questions (when possible) and include the content of the reply in the web page [items 319, 322, 341, 360, 375, 462, 462a, 486, 538]

(4) I have share the software that supports my web site with people [items 473, 498]

(5) I was a resource for "PCUniversity" -- a local technology training company [item 315].

B. Student Academic and Career Advisement

There are half-a-dozen CSci majors who come to me on a regular basis. When other students seek advice the department sends them to whatever faculty is available at the time. I advise about 2 or 3 students per week at the start of each quarter and during official advising periods [item 496]. The rest of the quarter I typically advise one student per week.

C. Service to Programs, Departments, School, University

I was the **External Reviewer** for the CSU San Marcos Computer Science Department's self study [item 504].

I have contacts in the **campus computer facilities** and provide (rare) technical advice[item 417, 405]. From 2003 to 2005 I was the CNS Representative on the **BAT/TAC committee** as 2003-2005 [item 370, 454].

I have served on **many department committees** [item 434]:

Department Undergraduate Curriculum Committee 2001-2004 [items 306, 309, 326,327, 342, 359, 397],
Graduate Committee 2001-2004 [items 373],
Department Evaluation Committee [items 426, 533],
Seminar Committee [items 330,332, 343, 494, 505, 531] [http://www.csci.csusb.edu/dick/seminar/],
Honors Committee (2005-2006).

At various times I have been chair of all these committees [item 426].

I acted as the **CSci Graduate Coordinator for Advising** during Spring and Summer 2003 [items 382, 385, 388]

I have often stood in for Dr. Concepcion as **chair of department** [items 347, 349, 374, 389, 513, 522] and presented a paper on his behalf at the ACM SIGCSE Conference in 2005.

I present two sessions at each **department open house,** demonstrating the work students have done in CSci 320 [http://www.csci.csusb.edu/dick/openhouse.html] [items 425, 442, 479, 497, 521] [JAR #3]

Some recent theses and projects targeted the department's systems: Cynthia Farqhar (UML) [item 455, 463] [JAR #2], Humaira Rahim (developing project documentation) [item 458], and Paul Conrad (PSP) [items 523, 524][JAR #4]

I was Dr Gomez's mentor in 2004-2005 [item 441].

I have joined the "CNS Museum" Committee [item 493] -- hoping to find a place for many pieces of computer

memorabilia in my office.

I was interviewed about using laptops on campus by ASI [item 325].

I donate my used copies of "Computer Reviews" and "IEEE Software" to the Department library in JBH307.

I attend CNS commencements [item 449].

I support web sites and software developed by the CSCI department [item 505, 510]

D. Other Activities
I do about one visitation per year -- typically to mathematics faculty.

I keep a detailed log of my activities on my web site and will place a copy of this document at
http://www.csci.csusb.edu/dick/FAR2006.html

IV. OTHER INFORMATION APPROPRIATE TO THE EVALUATION CRITERIA

I have been rated by students on www.ratemyprofessors.com [Item 309]

_____ _____
Signature Date

JOINT ACTIVITY REPORT #1

FACULTY MEMBER Richard John Botting

ACADEMIC YEAR 2005-2006

A. The Suduko Joint Faculty Seminar
This presented some discussion and research by myself and Dr. Voigt on the popular puzzle.

B. I organized the seminar and provided an example of how to not solve the puzzle with a computer. Dr. Voigt presented a method that works well.

C. Roughly 50% of the total effort.

JOINT ACTIVITY REPORT #2

FACULTY MEMBER Richard John Botting

ACADEMIC YEAR 2004-2005

A. Presentation and posters for the NSF Site Visit

B. Cynthia Farquhar did the posters and presented some the visual aids based on my research into the use of UML in MS projects at CSUSB.

C. Roughly 50% of the total effort.

JOINT ACTIVITY REPORT #3

FACULTY MEMBER Richard John Botting

ACADEMIC YEAR 2003-2006

A. Open House Presentations

B. Each of these is a double act, improvised with myself and any extrovert student volunteers who have taken CS320. I created the web page with links to work done by students of CS320 that is the prime visual aid. The joke web site on mass murderers and language designers was given to me by Chis Stokes(a CS320 alumnus)..

C. Roughly 30% of the total effort.

JOINT ACTIVITY REPORT #4

FACULTY MEMBER Richard John Botting

ACADEMIC YEAR 2005-2006

A. The First Computer Science Technical Report on the use of PSP (Personal Software Process) [Item 524]

B. Dr. Schubert proposed that Paul Conrad's Thesis should be the basis for a short technical report. Paul prepared the report (using TeX) with myself, Dr. Schubert, and Dr. Gomez (Paul's Thesis committee) as editors.

C. 10%