

# Professional Service

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## 1 My Service Goals

As I settled in to my first faculty position at the University of Washington, I began to realize that behind the primary responsibilities to teach effectively and to conduct research productively there lay a host of supporting responsibilities. These included the responsibilities to support one's students so that they were ready to learn, to review and help improve the work of one's peers, to build a supportive work environment, to mentor colleagues, to organize effective conferences, and to publish creditable journals. Indeed, the opportunities for service were so many and diverse that I realized that it would be easy for me to become totally immersed in these activities, to the inevitable neglect of my primary responsibilities. What, then, was the most effective way of using the inevitably limited time available for service activities to influence my department, academe and the profession for the better?

I realized that the answer to this question was to take maximum advantage of my strengths, to leave tasks for which I had no particular aptitude to others who were better equipped to tackle them, and, when possible, to chose service activities that would actually contribute to my teaching and research. Thus, the specific service activities that I have engaged in have varied over time as my skills have evolved, so that in the course of my career I have taken on many roles.

This narrative attempts to explain both the various ways in which I have served my colleagues and the profession, and the changes that I have observed in myself that have signaled to me that it was time to take on a new service role.

## 2 Washington and Digital: 1981–1994

During my years at Washington, my primary service activities were associated with my teaching and research. I was an active referee for many journals, conferences, and for the National Science Foundation, and was organizer or co-organizer of five professional meetings. These activities met my service goals: I was able to support the operating systems and programming communities, while at the same time increasing my own research effectiveness by broadening my knowledge of related

work and my network of professional colleagues. Specifically, during this period I undertook the following activities.

1. General Chair, 14th ACM SIGOPS Symposium on Operating Systems Principles, Dec. 1993.
2. Invited member of panel, 5th SIGOPS European Workshop, 1992.
3. Member of Program Committee, 5th ACM SIGOPS European Workshop: Models and Paradigms for Distributed Systems Structuring, September 1992.
4. Member of the Program Committee for the ACM SIGPLAN Conference on the Design and Implementation of Programming Languages (SIGPLAN PLDI), 1991.
5. Invited member of panel, ECOOP workshop on Object-based Distributed Programming, 1993.
6. “Shepherd” for two papers to be published at the Symposium on Operating System Principles (SOSP), 1989.
7. Member of the Program Committee for 12th Symposium on Operating System Principles (SOSP), 1989
8. Invited member of panel on Distributed Virtual Memory at 9th ICDCS, 1989
9. Co-organiser and session chairman at ACM SIGOPS Workshop on Accommodating Heterogeneity, December 1985.
10. Member of the editorial board, Journal of Programming Languages.
11. Referee for Acta Informatica, ACM Trans. Prog. Lang. Systems, IEEE Trans Softw. Eng., Computer Journal, Computer Languages, Addison-Wesley Publishers, Benjamin/Cummings Publishers, MIT Press, DC Heath Publishers, Conference on Functional Languages and Computer Architecture, Computing Surveys, SOSP, Information Processing Letters, Software—Practice and Experience, Computer Bulletin, National Science Foundation, IEEE Software, IEEE Distributed Computing Systems Conference, Int’l J. of Parallel Processing.

In the 1980s the role of computer technology in the creation of weapons of mass destruction was just becoming a matter of concern in the profession. In 1982, CPSR started informally in California under the leadership of Severo Ornstein, and in 1983 the Seattle branch was founded by my colleague Prof. Alan Borning. I was active in CPSR for the remainder of my time in Seattle, and Alan and I discussed ways in which our students could be made aware of their social responsibilities. This led to the development and delivery by Alan Borning and myself of a graduate course on Computer Reliability and Nuclear War.

When I moved to Digital in 1986, I was hired to found an advanced development group in distributed systems (DSAD). Once I had selected an initial project, and hired some colleagues, it became clear that we needed a manager: although the manager who had hired me, Alan Kirby, was very able, he was also blessed with more than twenty direct reports, and did not have time to effectively manage all of them.

Having succeeded in obtaining permission to hire a manager, we started interviewing candidates. Unfortunately, most of them were not well qualified for the position. Eventually, Alan Kirby

pointed out to me that the candidates who were applying for the position of manager were in fact less qualified for the job than was I, and he asked me to take on the role of manager of the group. This I did, and remained manager of DSAD until 1989, when I hired my replacement, and began spending more of my time at the Cambridge Research Laboratory. This was a successful period for the group, in which we completed the Hermes system and wrote two papers describing our results [38 and 39]. At the same time I became a roving advocate for distributed systems work within the company, arguing that Digital should be leveraging its dominant position in networking by moving to capture the distributed systems market.

Managing the group was also a learning experience for me: the way the one works as an individual researcher is very different from the way that, as a manager, one achieves results through other people. One of my direct reports was a brilliant but somewhat hot-headed new Ph.D.; another was a very effective team member who was significantly underpaid because I had hired him from another part of the company, and had inherited a “Pay Plan” for him that did not match his contribution to our group. I was able to help the new Ph.D. into a productive relationship with the group and the company. I was also able to resolve the pay issue for the internal hire; although my manager had said that this was impossible, I felt that unless this inequity was resolved it would be a threat to the continued success of the group.

In the fall of 1989 I became a full-time employee of Digital’s newly-formed Cambridge Research Laboratory. One of our initial tasks was the staffing of the laboratory. The lab had decided to emphasize applications, rather than systems or languages, a decision that I supported, given the obvious need to have impact on the company. However, one of the consequences of this was that most of the people I was involved in hiring were not people with whom I was likely to collaborate closely in research: this put me in a very different position than that which I had occupied when I had been staffing my own group. As the laboratory grew, I found that I was filling a new role: as a former manager and (in comparison to the newly hired staff) long-serving employee, I was a person to whom other employees would come to share their concerns about developments in the lab, and for advice on how to make connections within the company and juggle competing priorities. Thus, I found that I had become a mentor not just to my technical colleagues, but to the lab as a whole.

### **3 Service at OGI: 1994–2004**

In July 1994 I was hired as Professor and Head of the Computer Science and Engineering Department at the Oregon Graduate Institute (OGI). On my first day on the job, I was informed that the institution had just discovered a structural deficit that amounted to about 10 per cent of its annual budget. At the same time, it was realized that almost all of OGI’s endowment had been spent on a recent building spree. In response to these discoveries, the administration had sent letters to the faculty and staff telling them that their previously announced and approved pay raises, due to be implemented that month, had been cancelled. Morale was not high.

As the new kid on the block, I had several advantages. Most obviously, I could not be blamed for whatever mistakes had been made before I was hired. Secondly, I was free to ask naive questions about the way that things worked, and why they were done that way, and whether there might not be alternatives.

Within a short time we had realized that rolling the heads of the guilty, necessary though this might be, was not going to solve our problems. We needed to reinvent the institution, and as head of the largest and most financially successful department at OGI, I was going to play a leading role.

The institution convened two committees: an Academic Renewal Committee (ARC) to examine the academic side of the house, under the leadership of Prof. Paul Clayton, and a parallel committee to look at financial and administrative processes, under the leadership of a team of external consultants. I was a member of both committees, and chair of two of the ARC subcommittees. The situation before us was clear. OGI, like all private academic institutions, had three sources of income: research grants, philanthropy, and tuition. As researchers, we had been very successful in raising research funding, but comparisons with top-ranked research schools indicated that it was highly unlikely that we would be able to grow per-capita research income much more. Philanthropy had some growth potential, but there were two prerequisites to raising funds. First, we had to put the institution on a sound financial footing: no one wants to give money to an institution that is perceived as being on the verge of collapse. Second, we had to have a product that donors would see as worthwhile: our students. Thus, ARC concluded that we needed to undertake a major expansion of our educational programs, both as a way of generating additional tuition income, and as a way of raising our profile with potential donors. ARC set a goal of doubling our educational revenues within three years.

As Head of the Department of Computer Science and Engineering, much of the responsibility for achieving this goal fell to me. The attached letter from Mr Paul Bragdon, who was at that time President of OGI, describes some of the things that we accomplished. The short version of the story is that in CSE, we succeeded in meeting ARC's ambition goal. Net tuition revenue rose from \$909 k in 1995-6 to \$1 845 k in 1998-9. The number of MS graduates increased to from about 20 to 40 per year over the same period. We achieved these goals by treating education as a business, by treating the students as customers, and by making sure that their experience was as smooth administratively and as challenging intellectually as we could make it. We surveyed our market so that we could adapt our course offerings to meet it. We moved most of our classes to the evenings. In making these changes I was fortunate in having the help of some very dedicated assistants, most notably Prof. Lois Delcambre as Associate Chair for Education, but also our Academic Coordinator, Shirley Kapsch, a professional resource much valued by both faculty and students, whom I hired into this position. Throughout this period, some very basic services remained dysfunctional; it was not until 1999 that we finally made some progress towards providing minimal classroom support, like clean whiteboards, pens, and having a staff person "on call" to deal with problems that arise while a class was in session, particularly during the evenings. The facilities situation was eased by the funding of a proposal that I and Prof. Dan Hammerstrom, Head of ECE, made to the J.M. Murdock Charitable Trust to provide "Technology for Education at OGI", which provided us with \$1M for institution-wide educational infrastructure in 1998-99.

These changes to our educational programs did indeed allow OGI to successfully seek new sources of philanthropy. In 1997 OGI attracted a gift of \$1.5 M from Dr. Gordon Moore, a founder of Intel, and his wife Betty, to support the ECE department. As Paul Bragdon notes in his letter, at the press conference announcing this gift, Keith Thomson, Intel site manger for Oregon, spoke of the way that Andrew Black had "turned around" the CSE department so that it was responsive to the need of Intel, and how this perception of customer focus had made Intel willing to partner with OGI in soliciting the donation from Dr. Moore.

At the same time as undertaking this major expansion of our educational programs, it was necessary to not only maintain but also enhance our research effectiveness. One obstacle was that our research infrastructure was sadly out of date. In 1996, Prof. Calton Pu coordinated a department-wide proposal to the National Science Foundation (NSF) for a major Research Infrastructure award, and in 1997, with the assistance of Prof. David Maier, I successfully managed the Foundation's site visit and wrote an "Addendum" to the proposal that set forth our vision for the requested infrastructure and explained how it formed a cohesive whole. We obtained \$1.2 M from NSF, including much needed funding for staff to support the infrastructure, which the Foundation had initially wanted to cut. I also obtained \$200 k of matching money from industry. To achieve this level of funding, OGI had to commit to providing over \$500 k from non-government sources, most of which was payable in the last three years of the grant. When OGI was unable to find all the money to back this commitment, I wrote a proposal to the J. M. Murdock Charitable Trust for over \$270 k to fill the gap.

Other department-building activities during my time as department head included the following.

- I obtained reasonable raises for the faculty, making their salaries commensurate with those earned by their colleagues in comparable departments across the country.
- I launched (and found funding for) a distinguished lecturer series, bringing computer professional to campus to hear nationally-known speakers. The series was ably managed by Prof. Todd Leen.
- I collaborated with PSU, OSU and U of O to launch the state-wide Oregon Master of Software Engineering (OMSE) program. In 1997, I recruited Dick Fairley to lead OGI's participation in OMSE; his expertise moved the technical center of gravity of the program to OGI.
- I was invited to speak at the National Educational Computing Conference (Seattle, 1997) on what industry needs from new hires.
- I re-designed the CSE department's computing facilities operation so that it was on a sound financial footing and so that there was a reasonable basis for resource allocation.
- I served on the Presidential Search Committee, whose tasks included determining our requirements, screening and interviewing candidates, soliciting campus input and feedback, and selecting the finalist.
- I consolidated the department into two buildings after five years during which it was spread across as many as seven buildings.
- I launched an internship program for MS students, and put a co-op degree in the catalog.
- I took recruiting trips to other universities, giving talks on why CS majors should go to grad school in general (and to OGI in particular). I launched a web site on the same topic; this site had over 3000 hits in the first few months. (This was in 1999, when the computer industry was still hot, and grad school was not an option that most undergraduates even thought of.)
- I served as Chair of the International Workshop on Object-Oriented Systems (IWOOS) in 1996, helping to bring OGI's growing systems department to national attention.

- I recruited twelve new faculty members, and oversaw the promotion of four Assistant Professors to the rank of Associate and five Associate Professors to the rank of Professor.

During 1999, I decided that the time had come to step down as department head, and to focus my energies on research and teaching. Having been distant from mainstream research for more than five years, this was a challenging change of direction; to support it, I focussed my service activities externally, so that they would complement my efforts to re-connect with the research community. Since January 2000, when James Hook took over as Department Head, I have undertaken the following assignments.

- Programme Committee Chair, European Conference on Object-Oriented Programming (ECOOP '05) Glasgow, Scotland July 2005.
- Programme Committee Member, Workshop on Foundations of Object-Oriented Languages (FOOL) 2005.
- Programme Committee Member for academic track at the European Smalltalk Users Group (ESUG) annual conference, 2003 and 2004.
- NSF Site visit at a major East coast engineering school, 2003.
- Several NSF Review panels (one in 2002, two in 2003).
- Co-organizer of the MASPEGHI Workshop at ECOOP '04, Oslo, Norway, July 2004.
- Programme Committee Member, European Conference on Object-Oriented Programming (ECOOP '03) Darmstadt, Germany, July 2003.
- Co-organizer of the Inheritance Workshop at ECOOP '02, Málaga, Spain, June 2002.
- Co-organizer of workshop on Next 700 Distributed Object Systems at ECOOP '01, Budapest, Hungary, June 2001.
- Invited participant and speaker at Joint NSF-DARPA Workshop on Future Directions in Hybrid and Embedded Systems, October 2000, Arlington VA.
- Speaker, host and participant at the Portland Extreme Programming Users Group (XPDX) (<http://xpdx.org>).

The ESUG annual conference, mentioned in the third bullet, is not a typical academic conference; it has been more focussed on industry and on Smalltalk practitioners. Before 2003 there was little reward for academics to present their work at this conference, because it did not rigorously referee submissions nor publish formal proceedings. In an attempt to encourage academic participation, in 2003 we set up a refereed track at ESUG; I was a member of the committee for this track. The submissions were generally of high quality, and the many of the papers were not only accepted for presentation at the conference, but were also subsequently published in a special issue of *Computer Languages, Systems & Structures*. One of the papers, while very interesting in content, was missing some basic parts, such as a complete list of references. I volunteered to shepherd this paper and

help put it into an appropriate form for submission to the journal.<sup>1</sup> It was only at the conference that I discovered that the author had not yet started his studies for his Bachelor's degree! He was a self-taught Smalltalker at that time working in the Israeli Defense Forces, and now enrolled at the Technion. Thus, I'm quite pleased at my investment in this programme committee: it has raised the level of the ESUG conference, brought academics and practitioners into closer contact, and given a new undergraduate exposure to a technical community that he would otherwise most likely not have encountered.

The final activity, my participation in XPDX, was valuable in many ways. I had developed an interest in Extreme Programming (XP) because, based on my experience with programmers in industry, the XP methodology valued the thing that programmer really value (working code). I determined to learn more about XP, and to see if it were possible to teach a class on XP at OGI. I used XPDX as a way of increasing my own knowledge, but also of building connections between OGI and industry experts, such as Ward Cunningham. For much of 2004 I hosted XPDX meetings at OGI, which was good for the group and provided visibility for the school.

Over the same period, with the support of my Department Head, I deliberately limited my on-campus service. Two exceptions were my membership of

- OGI School web team, 2003–4, and the
- OHSU Educational IT Steering Committee (2000–2001).

The OHSU committee leveraged my experience overseeing the department's own computing facilities operation during the time that I had been Head. I was encouraged at the depth of support that the newly merged University was able to offer to education, as well as sometimes being able to surprise the committee by contrasting the rather different approaches that the OGI School and the School of Nursing took to educational technology. It was with some reluctance that I withdrew from this committee when I was granted a sabbatical leave in 2001–2002.

The assignment to the OGI School web team, under the leadership of Prof. Lois Delcambre and a staff member, Jeff Schilling, resulted in an excellent new database-driven web site and administrative interface that let the secretarial staff (and a high-school student) take over the bulk of routine web maintenance. I took on this responsibility because it seemed a natural fit with my distributed systems expertise.

Since arriving at PSU, I have been a member of the undergraduate committee. This is proving to be a learning experience for me, since I have not focussed on undergraduate education since I left the university of Washington. Major concerns of the committee, such as ABET accreditation, are completely new to me. I look forward to gaining enough background in these issues to become a valuable member of the committee.

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<sup>1</sup>It was subsequently published as Daniel Vainsencher: "MudPie: layers in the ball of mud". *Computer Languages, Systems & Structures*, **30**(1-2), April–July 2004, pp. 5–19.