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## David D Stubbs

Available through

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## Areas of Usability Engineering Practice

- **Gathering detailed end-user product requirements** with primary focus on user roles, workplace goals, tasks, work-arounds, and usability metrics
- **Transforming context research to requirements** to guide feature sets including: proper classification of wants, needs, benefits, measures, functionality, and implementation alternatives
- **Designing the user interface** for learnability, utility, efficiency, memorability, error avoidance, and satisfaction
- **Evaluating the design** in use for what works well, what doesn't, what's missing, and what's there that isn't needed.

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## User Research, Interaction Design, Usability, and Tools Experience

- Developing and testing concepts and models with users<sub>15+ years</sub>
- Performing heuristic reviews of designs and existing products (includes competitive analysis). Preparing and delivering written and oral reports of findings and recommendations<sub>15+</sub>
- Designing and executing field observations, interviews, and usability tests<sub>15+</sub>
- Analyzing field work to produce ethnographic-style reports about context, activity/task diagrams, key verbatims<sub>15+</sub>
- Creating "snippets" videos of work, interviews, and usability tests<sub>10</sub>
- Identifying and documenting key personas and scenarios of product use, document task flows, use cases and usability goals<sub>10+</sub>
- Facilitating process mapping, product feature/function trade-off, and affinity exercises<sub>15+</sub>
- Creating user interface storyboards, navigation maps, and layouts (wireframes)<sub>15+</sub>
- Implementing and testing user interface simulations (paper through hi-fi interactive)<sub>15+</sub>
- Specifying user interface in detail. Collaborating with developers toward product implementation<sub>15+</sub>

**General tools:** MS Office/Visio Enterprise+VBA and earlier<sub>15+</sub>, GoToMeeting/ NetMeeting/ WebEx<sub>5</sub>, barcode reader<sub>1</sub>, ClearQuest/ClearCase<sub>1</sub>

**Simulation tools:** Visual Studio/VB/Net<sub>15+</sub>, Photoshop CS<sub>2,3</sub>, PowerPoint<sub>15+</sub>, Excel<sub>15+</sub>, Visio<sub>15+</sub>

**Research tools:** N\*udist/NVivo qualitative analysis software<sub>15+</sub>, QFD<sub>15+</sub>, Oxford WordSmith text analysis software<sub>10</sub>, Anthropac multi-dimensional analysis software<sub>10</sub>, video cameras and scan converters<sub>15+</sub>, microphones, audio recorders, video and audio mixers<sub>10</sub>, Ethnograph qualitative analysis software<sub>1</sub>, Morae Portable Usability Lab<sub>1</sub>, Audacity audio editor<sub>2</sub>, SmartPix video snippet organizer<sub>1</sub>

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## Employment and Project History

1999 TO PRESENT – USABILITY ARCHITECTS, INC., VICE PRES. & PRINCIPAL CONSULTANT

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I currently represent Usability Architects, Inc. (UAI), of Kirkland, Washington, as Vice President and Principal Consultant. I provide direct consultation and project work as well as specialized usability and user experience/interaction design staffing to UAI's industrial and commercial clients in the western United States ([www.usability-architects.com](http://www.usability-architects.com)). My clients have included TransCore, Hewlett-Packard Company, Intel, Tektronix, NCS Pearson, ASPCA, Bosack-Kruger Foundation, and the Portland-area Tri-County Metropolitan Transportation District.

- **Travel Interviews** – Assisted Vaught Usability Group with stakeholder and end-user interviews, recording, transcription, and key verbatims toward redesign of the TravelPortland.com (visitor bureau) web site. May, 2008. Portland, OR.
- **Freight Matching Fieldwork** – Designed and conducted interviews with freight brokers for TransCore. Used NVivo and SmartPix to analyze transcripts and videos. Provided written report to TransCore. – March 2008. Northwest Arkansas.
- **Instrument UI Design** – Created paper prototypes and designed, conducted and reported usability tests toward refining a new general-purpose logic analyzer user interface. Took over the UI specification from the User Experience architect, created additional use-case and specification detail to existing documents and designed areas not fully developed; interpreted the specification to and managed UI defect correction for Bangalore implementation team. Used ClearCase for defect tracking and management, ClearQuest for document and asset management.

Facilitated 1,800-item affinity diagram exercise with product team based on 20 prior user interviews. Created bar-coded Post Its, bar-code data capture macros for Excel, and organized report formatting for marketing team.

Designed and specified appearance and UI behavior for the [7Sxx PCI Express serial analyzer](#) module and an application that presents simultaneous data from multiple serial links. Specification relied on narrative scenarios and use-cases to introduce and motivate the design decisions. Made numerous presentations and demonstrations to management and key customers. Interpreted the specification to and managed user interface defect correction for Bangalore implementation team. September 2005 – March 2008. Beaverton, OR.

- **Freight Matching Software** – Performed heuristic review on freight matching software (likened to “dating service” software for truckers and shippers) for TransCore. Provided specific and general recommendations toward improving the user experience. July 2005. Beaverton, OR.
- **Hewlett Packard Consumer Innovation and Design** – Collaborated on design of and wrote the detailed User Experience Specification for the [Photosmart 425 GoGo Photo Studio](#), a printer with docking camera. Collaborated with implementers in Boulder, Colorado, and China to assure user interface quality.

Provided staff human factors support to a variety of Hewlett Packard internal clients throughout the Imaging & Printing Group as a member of the Vancouver Consumer Innovation & Design Center. Developed screeners, conducted, analyzed, and reported usability tests. July 2003 to July 2005. Vancouver, WA.

- **Patent Consulting** (private contract) – Providing expert assessment of competing instrument user interface patents for Finnegan, Henderson, Farabow, Garrett & Dunner, LLP, Washington, DC. March 2004 to May 2005.
- **Patent Consulting** (private contract) – Provided expert assessment of competing instrument control software user interface patents for Meyertons, Hood, Kivlin, Kowert & Goetzl, Austin, TX, (private contract). Fall 2003 to Summer 2004.

- **Hewlett Packard Mobile Printing Applications** – Provided consultation and heuristic evaluation for new versions of Hewlett-Packard's wireless "mobile printing for Pocket PC" product and software development kit (SDK). Designed, wrote recruiting screeners, conducted, and reported usability tests of three versions of the prototype software. Provided specific and general recommendations toward improving the user experience. March – June 2003. Vancouver, WA.
- **Printer Unpack and Install** – Designed, conducted, and reported usability tests of prototype printer unpack, software installation, printing and front panel operation usability for Hewlett-Packard Singapore. Provided specific and general recommendations toward improving the user experience. January and February 2003, San Francisco and London UK.
- **Transportation District Home Page** – Designed, developed screener, conducted, and reported usability test of proposed home page for Tri-County Metropolitan Transportation District of Oregon. December 2002. ([www.trimet.org](http://www.trimet.org))
- **Mobile Printing Application** – Conducted two rounds of heuristic review. Designed, wrote screener, and conducted usability tests of Hewlett Packard's wireless "mobile printing for Pocket PCs" product. Testing included web download, installation, and operation. August 2002 to October 2002, Vancouver, WA.
- **Commercial Printing Web Application** – Designed, conducted, and reported usability tests and heuristic reviews of a web-based print-on-demand order system with print service providers and print buyers in Portland, New York, and Chicago for Hewlett-Packard. Provided specific and general recommendations toward improving the user experience. February 2002 to April 2002.
- **Classroom Management Web Portal** – Conducted heuristic reviews on initial portal design, designed, recruited for, conducted, and reported usability tests of an on-line school web portal product being readied for market by NCS-Pearson. Provided specific and general recommendations toward improving the user experience. Design and conducted teacher focus groups around management tool needs. November 2001 to March 2002. ([www.ncspearson.com](http://www.ncspearson.com))
- **PetWhere Animal Shelter Software** – Provided usability consultation to the executive director of the Bosack and Kruger Charitable Foundation and the ASPCA regarding detailed design of a new version of their full shelter management software. Served as interim software engineering manager and lead user interface designer for revision of PetWhere 2.6, used in over 900 shelters across North America. Used Visio Enterprise to create storyboards, wireframes, sitemaps, and Entity-Relationship (ER) diagrams of proposed database structure. Spring 2000 to Spring 2002, Redmond, WA, and Urbana, IL. ([www.petnet.org](http://www.petnet.org) , [www.aspca.org](http://www.aspca.org))
- **USB PlugFest Usability Suite** – Reviewed usability of USB peripherals during a USB-IF certification event on behalf of the Ease of Use/PC Quality Roundtable, suite sponsored by Intel and Microsoft. October 2001, Milpitas, CA. ([www.usb.com](http://www.usb.com), [www.eouroundtable.com](http://www.eouroundtable.com))
- **Zairmail Consumer Web Site** – Performed heuristic review of and recommended design changes for on-line mailing service. Summer 2000, Portland, OR. ([www.zairmail.com](http://www.zairmail.com))
- **International Certification Mark Management Web Site** – Performed heuristic review of Hewlett Packard's Certification Mark (e.g., CE, CCC, C-Tick, etc.). Designed, conducted, and reported usability tests with staff who would interact with the application. Provided specific and general recommendations toward improving the user experience. Spring 2000, Vancouver, WA.
- **Hardware performance analyzer** – Reviewed installation and applications screens for Intel's Vtune software. 2002, Hillsboro, OR.
- **Authorized Solution Provider web site** – Performed heuristic review of Intel's ASP site during its ongoing redesign. Various times between 1999 and 2002.

My independent projects included work on Intel consumer products, Hewlett-Packard inkjet printers and business processes, Rain Bird Commercial Division sprinkler controllers and irrigation management software, and various Tektronix instruments.

- **Computer Office and Entertainment Peripherals** – Contracted through Usability Architects, Inc. to provide control panel user interface specification for line of PC peripherals being developed at Intel. Wrote specifications, reviewed with development team, presented designs to management. Designed, conducted, and reported usability test. Implemented recommended changes in the design specification. Fall 1998 to Winter 1999, Hillsboro, Oregon.
- **PC Utility Software** – Provided heuristic reviews of and design recommendations for early version of Intel's AnswerExpress web site. Fall 1998.
- **Office Printer Interface** – Consulted with Hewlett-Packard Vancouver Division for design and creation of Visual Basic 5.0 simulation of a small user interface (SUI) for a pending line of office printers. Wrote extensive use-case set and drafted proposed workflows to support both User Interface developers and Industrial Designers. Summer 1998 to Fall 1999, Vancouver, WA.
- **Commercial Sprinkler Control System** – Contracted with Rain Bird, a major irrigation controls manufacturer, for user interface design of a Windows-based commercial sprinkler control system family consisting of both hardware and software.

Conducted field observations and user interviews, task analysis and feature/function trade-offs toward establishing workflows and feature sets; created Visual Basic simulation of the software, designed, conducted, and reported usability test with specific and general recommendations toward improving the user experience.. Delivered user interface specification and supported Rain Bird's implementation bidding process. Summer 1996 to Fall 1998.

- **GPIB ↔ LAN Adapter** – Contracted with Tektronix for detailed usability critique and beta testing of an embedded web site and a firmware update utility of their instrument connectivity adapter.

Synthesized recently published web design and usability guidelines into framework for critique; performed an intense heuristic evaluation of page layouts, navigation mechanisms, terminology, and overall consistency; wrote new HTML pages to illustrate recommendations. Located and recruited participants for Beta test; developed and executed background interviews; conducted video-taped "think aloud" interviews of product unpack and installation. Spring 1998.

- **Instrument Front-Panel Simulation** – Contracted with an Tektronix to create a user interface simulation of a never-released industrial test instrument.

Working in Visual Basic, developed parameter classes for automatic propagation of value and range constraints among the approximately 50 parameters of the product. Integrated industrial design drawings and VB interface objects to produce a simulation with product appearance and realistic response-time behaviors. Winter 1998.

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#### 1993 TO 1997 – TEKTRONIX, CENTRAL ENGINEERING

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As manager of the Tektronix Customer-Centered Design group in Tek's Central Engineering organization, I located projects for and supervised assignments of four engineers across Tek's Measurement Business (test and measurement instruments). Prepared budget, staffing, and equipment plans. ([www.tek.com](http://www.tek.com))

Created "Engineer in the Wild," a support system and brief ethnography training program for engineers visiting customers to work on their projects for extended periods (1-8 weeks).

As a practitioner in the group, I developed and refined many of the end-user interview methods the group uses to elicit deep work background, detailed product requirements, design and usability issues, and prod-

uct impact on the workplace. Worked as full member of product development teams from earliest concept development stages through the first several weeks of product shipping.

Projects included:

- **RFA300 8VSB Measurement Set** – Designed, conducted, and reported early requirements interviews toward development of a product to measure the new US Digital Television Standard.
- **Purchase Order Automation Software** – Provided heuristic review of Oracle-based software for PC, UNIX/Solaris, and Macintosh-based creation of electronic purchase orders. Designed, conducted, and reported usability tests of application as implemented.
- **TDS 210/220 Digital Real-Time Oscilloscopes** – Assisted colleagues in training, execution, and analysis of development team's Panel-of-Experts nation-wide interviewing effort. Facilitated QFD analysis of features and functions toward final requirements. Developed Visual Basic user interface simulation; reviewed usability testing methods, results, and recommendations.
- **Pay-for-Performance Automation Software** – Designed, conducted, and reported usability tests of Oracle-based software for direct management input of subordinates' yearly performance and pay recommendations.
- **TFS-3031 Mini Optical Time Domain Reflectometer** – Facilitated early requirements interviews with telephone line technicians toward design of a fiber-optic cable testing instrument used by cable technicians and installers. Created high-fidelity Visual Basic simulation of the product's touch-screen user interface.

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1991 TO 1993 – TEKTRONIX, MEASUREMENT DIVISION – SENIOR SOFTWARE ENGINEER

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Lead user interface design and implementation for a portable oscilloscope, the TWD120. Conducted field studies of and usability tests with GE Medical technicians at various hospitals in the southeast US.

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1985 TO 1991 – TEKTRONIX, TEKLABS – SOFTWARE ENGINEER III → PRINCIPAL ENGINEER

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Developed advanced automated electronic test development concepts the Electronic Systems Laboratory. Principal or co-inventor on five patents. Performed interviews and observations to detail manufacturing test workflows and specific user and machine tasks. Presented findings to management and at regional technical conference (ATE West). Continued test automation work in the User Interface Research Lab after reorganization.

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1976 TO 1985 – TEKTRONIX, MEASUREMENT SYSTEMS DIVISION – SOFTWARE ENGINEER I → III

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Wrote OS core, instrument control and graphics routines for an assembly language Basic interpreter project for instrument control and digital signal processing. Developed and taught API classes for scientific/industrial users.

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1974 TO 1976 – KEY DATA, PORTLAND, OREGON – SOFTWARE PROGRAMMER

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Hired from the Portland State University Scientific Computer Center, I was a mini-computer programmer (Fortran, assembly, and RPG II) and worked on four database applications with senior staff. Data General Eclipse.

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## Professional Activities

I have been a member of the international Association for Computing Machinery (ACM) and worked for its Special Interest Group on Computer-Human Interaction (SIGCHI) since 1988. I served as audio-visual chairman for three of the SIG's major conferences, CHI'90 (Seattle), CHI'91 (New Orleans), and INTERCHI'93 (Amsterdam, The Netherlands) supporting the 200+ technical presenters and conference staff with presentation equipment and professional personnel. ([www.acm.org](http://www.acm.org), [www.acm.org/sigchi](http://www.acm.org/sigchi))

I am past executive director and program chair for CHIFOO, the Computer-Human Interaction Forum Of Oregon (a local chapter of ACM/SIGCHI) ([www.chifoo.org](http://www.chifoo.org)). I am currently a "member-at-large" assisting the board as needed.

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## Education

BS in History from Portland State University (1974) and have a number of graduate-level computer science, AI, and software management courses through the Oregon Graduate Institute.

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## References

- **Peter Hildebrandt** – Director of Research and Development, Director of Product Management, Poly-Vision Corporation, a Steelcase company, Norcross, Georgia. +1.800.631.4514 x1262.
- **Leo Frishberg** – User Experience Architect, Logic Analyzer Product Line, Tektronix, Inc., Beaverton, Oregon. +1.503.627.2833.
- **Pamela Adams** – Senior Human Factors Engineer, HP Labs, Hewlett-Packard Company, Vancouver, Washington. +1.360.212.2854.
- **Mark Stempki** – User Experience Research & Design Engineer, SQL Server Group, Microsoft, Redmond, Washington. +1.425.722.8366.