

EMPLOYMENT

Senior Research Fellow

University of York, UK.

2016-current

Expertise

- Expertise in ethnographic design, from recruiting, topic generation, transcription, coding and deriving requirements (AART-BC & IKnowFood) skilled in using NVivo (ethnographic coding and analysis)
- Statistical analysis using SPSS of survey and experimental data
- Deep research and analysis of available data into a database for Green House Gas Carbon Dioxide equivalents with respect to food from farm to store.
- Stakeholder work, professionals and end-users (including proxy-users) but also policy and legal stakeholders. Focus groups, interviews and design with users.

Projects and research:

- Internal
 - Arrietta Project – developing a proposal and description of workplan for a novel way of communication with persons having Locked in Syndrome, including asymmetrical (patient initiated) communication prototypes.
- External
 - I know Food - : Integrating Knowledge for Food Systems Resilience, developing metrics and applications for supporting consumer adopting sustainable food and consumption practices. Developing a database of foods and meals integrating green house gas generation and nutrition data. Researching and developing persuasion approaches based on smartphones and using the NUDGE framework.
 - AART-BC - Adaptive Assistive Rehabilitative Technology – Beyond the Clinic. Assisting in programming and debugging user experience sampling tools, statistical analysis of survey data. Structured archiving of all research data from this large project.

Senior Scientist

Tecnalia Foundation, San Sebastián, Spain

2008 - 2016

Expertise

- Expertise in finding and extracting key information about novel domains, spanning ethnography, interviewing, literature and in-the-field practitioners. (ASSISTANT, Fidemaïd)
- Stakeholder work, professionals and end-users (including proxy-users) but also policy and legal stakeholders. (Cognitive Reminders)
- Field research - instrumented probes & ethnography as well as coding and transforming data into actionable formative results as well as unbiased summative evaluation. (ASSISTANT, Haptimap)
- Skilled at lab based usability testing, experiments from the perspective of cognitive science, think aloud, capturing useful lab based events and making actionable results out of them (ASSISTANT)
- Extensive experience in designing neutral and useful surveys and semi-structured interview templates
- Wireframe, paper, lo-fi and mid-fi (dynamic) prototype constructions and supervision as well as multiple simultaneous prototype evaluation and merging. (ASSISTANT, Fidemaïd, Cognitive Reminders)
- Experienced at designing field trials that produce actionable results, managing debugging, refactoring and interface improvement while performing regression testing as appropriate. (ASSISTANT, Haptimap)
- Skilled at summative testing, from generating the appropriate parameters of the summative tests in the requirement phase to designing scenarios of use to be tested in and generation of results that support iterative improvement in the user centred design process.

Projects and research:

Neuroengineering Department (2008-11) Assistive Technology Department (2011-16)

- Internal
 - Fidemaïd - End-user research (interviews and prototype evaluation) in supporting elders perceiving, making financial decisions and potential problem alerts aimed at aging-in-place for elders.
 - Contextual Reminders - Implementing a prototype to mitigate ‘the senior moment’ based on the ‘cognitive interview’.
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- **Haptimap** - Evaluating novel multimodal perceptualizations for Location Based Services; investigating multimodal feedback to augment and replace visual feedback for diverse users (including deaf-blind) in diverse situations (e.g. City streets, parks, plazas)
- **ASSISTANT** a 2.7M€ AAL / EU 3 year project, P.I.. Directed Description of Work, high level design, scenarios of use, and requirements gathering. Lead design of interfaces for smartphone and web based route and preference editor, optimized for elders, and with deep interface and behaviour personalization. Designed framework for error trapping and mitigation for user/system/environmental failures. The system was successfully (i.e. no system failures) and effectively (100 trips over 2 weeks) field trialled in 3 European cities of varying types and sizes. System design for easy/low-resource implementation in diverse transit systems, especially smaller transit organizations, to mitigate this digital divide (i.e. missing resources for creating bespoke systems).

Staff Scientist

(Postdoc)

Fraunhofer Institute , Sankt Augustin, Germany

2006 - 2008

- A standards based set of metadata (in the form of an ontology) mapping disabilities, devices, and appropriate educational material and their respective metadata.
- BIKA (Barrier-free Information and Communication Technologies for All) Web Compliance Center
 - EU4ALL EC project - designed and implemented algorithm for providing pedagogical material based on standardized user, digital devices and adaptation models
 - DfA@eInclusion EC projects designed and lead a workshop on Design For All practices in EU industry.

Graduate Research Assistant

University of Colorado, Boulder

2001- 2006

Expertise: Distributed cognition based design, MetaDesign, socio-technological environment evaluation, deep personal configuration, end-user programming

Project: MAPS - a set of tools that support end user programming. MAPS is aimed at persons with cognitive disabilities and caregivers, to be used to provide guidance to accomplish tasks impossible to do without support.

Manager of Information Systems

Express Reservations, Boulder Colorado

1994 - 2002

- System Administrator of heterogeneous UNIX/PC networks, 65 nodes including AIX, SCO, NT, and Windows.
- Database design, management and development (Xbase, MySQL, Oracle).
- Designed and directed several medium sized software projects (Screen Popping and ACD notification) involving interfacing PBX (Fujitsu FX9600sm), IBM RS6000 and PCs via serial and network connections. .

EDUCATION - University of Colorado at Boulder

Ph.D. Computer Science with certificate in Cognitive Science, (2006)

Center for Lifelong Learning and Design, Gerhard Fischer, advisor

M.S. Computer Science (2002)

B.S. Computer Science (1992)

The Donald Mackison Award for Excellence in Writing on Science and Society, the University of

Colorado (1992)

Projects

- **MAPS** (2004-6). Design and implement interfaces and system modules to support multimedia programming and end user interfaces to support young adults with cognitive disabilities doing tasks that they were unable to do unassisted (see *Leveraging Skills into Independent Living- Distributed Cognition and Cognitive Disability*)
- **Image recognition and cognitive ability** (2004). Experimentally determined the relationship in successfully and rapidly recognizing specific objects dependent on fidelity of images (photo to icon) and cognitive ability (significant developmental disability to typical young adult) "Mapping Images to Objects by Young Adults with Cognitive Disabilities", *Research In Developmental Disabilities*.

Languages and Technologies

- Java; Visual Basic; C; C#, SQL; JavaScript; XML, UML, Python, UNIX Shell Programming; various prototyping/wireframe tools; HTML & WWW server admin; ethnographic research and design.
- Eclipse, XCode; OWL ontology design / Protégé; UNIX system admin; DBM (MySQL, oracle).

Managerial and integrative expertise

- Budgets, presentations, refactoring projects due to changed resources (ASSISTANT), proposal generation, Gantt & Pert charts, and deliverable-oriented decomposition of projects. Project organization and leadership

Professional Service Activities (see CV)

- **Workshop Organizing:** 2011 Universal Access in Human-Computer Interaction; HCII; 2006 Designing Technology for People with Cognitive Impairments, CHI.
- **Editorial board:** "Universal Access to the Information Society: An international interdisciplinary journal" (UAIS), quarterly Springer Journal
- **Reviewing:** 45 conferences (2004-2016); 12 Journals (2010-2015); 6 proposals (2008-2015)

Additional biographical information

- Citizen of USA, born in California, interested in relocation to Canada, USA, UK.
- Association of Computing Machinery, Senior Member

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- ACM Special Interest Group Computer-Human Interaction (SIGCHI)
 - Institute of Electrical and Electronics Engineers (IEEE), Senior Member
 - Rehabilitation Engineering and Assistive Technology Society of North America (RESNA)
 - Cognitive Disabilities and Technology Special Interest Group (SIG-20)
 - Secretary, RESNA Standards Committee on Cognitive Accessibility (CA)
 - British Standards Institute, cognitive assistive technology expert
 - ISO/TC 173/WG 10 Assistive products for cognitive disabilities committee member
 - Previous employment: 12 years inventory and production control in manufacturing companies: refrigerated tractor trailers, FDA devices, and military grade electronics. 10 years woodworking /custom furniture design.
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Publishing (see S. Carmien C.V. - <http://www.scarmien.com/papers/CarmienCV.pdf>)

- **Books:** Assistive Technology Design for Intelligence Augmentation (2016), Leveraging Skills into Independent Living- Distributed Cognition and Cognitive Disability (2007)
- **Book chapters:** 9
- **Papers in refereed journals:** 4
- **Papers in refereed conferences:** 14
- **Keynotes, workshops and other (trade journals, EC meetings, closed workshops) publications:** 23