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|  |  |  | Topic | Aspect | Method | 1st / 2nd | Objective | Problem addressed | Definition of topic/ aspect | Issues / debates raised | Findings/ Concepts / theories / models / presented | How does it relate to other papers? | What did I learn? | How does it relate to my research? | Keywords | Notes: |
| Cognitive assisted living ambient system: a survey | Li,Ruijiao;Lu,Bowen;McDonald-Maier,Klaus D. | 2015 | Assisted Living | Ambient Assisted Living | Review. Examined case studies. | 2nd | Summarise AAL research. | Lack of research summary. | AAL: innovative technologies that assist healthcare and rehabilitation of impaired seniors (particularly cognitive impairment) | Aging demographic. Costly to society. | Present current and future challenges.  AAL summarised as: daily task facilitation,  mobility assistance , health-care and rehabilitation , and  social inclusion and communication | Review of other papers. | AAL, Conferences for AAL. Technologies developed.  Smart homes. | Covers smart homes. Smart homes could be controlled through a voice assistant. | Assitive living;  Digital communica-  tion;  Smart home;  Robotics;  Sensor network | TRON project, Easy Living, House\_n, CASAS , for Smart Homes |
| Reshaping what counts as care: Older people, work and new technologies | Roberts,Celia;Mort,Maggie | 2009 | Telecare |  |  |  |  |  | Telecare, sensors that alert remote centres. Distinct from telemedicine (body sensors) |  | Three areas of telecare:  Monitoring, Physical, Social/Emotional | Builds on work on disability and feminist studies. Doreen Massey 1994. Related to smart homes. |  | Helps older people living at home. | Telecare; Care work; Older people; Home; Disability studies; Feminism | Informal and narrative writing style |
| Dignity conserving care at end-of-life: A narrative review | Ã–stlund,Ulrika;Brown,Hilary;Johnston,Bridget | 2012 | End-of-life care | Dignity | Review. Thematic analysis. | 2nd | Define Evidence vs Research  Suggest care actions to improve diginity (Chochinov model) | Lack of individualised needs understanding. |  | Weak support for individualised needs | Model addressed by research, except Aftermath stage. | Uses Chochinov model of dignity |  | Pallitative care. Designing care for end-of-life. | Dignity  Distress  End-of-life care  Palliative care  Review | Dignity important to palliative care.  Narriative review, structured with systematic ideas. |
| A Systematic Review of the Economic Evidence for Home Support Interventions in Dementia | Clarkson,Paul;Davies,Linda;Jasper,Rowan;Loynes,Niklas;Challis,David | 2017 | End-of-life care /  Dementia | Cost | Review | 2nd | Inform future care decisions |  |  | Lack of economic evidence for interventions.  Broad ideas / concepts exist, few practical implementations found. | Occupation therapy, home-based exercise, carer coping interventions were evidenced as being cost-effective. | Small scale review. |  |  | cost measurement,  dementia,  economic review,  home  support. | Little work done combining ideas |
| Implementing complex innovations in fluid multi-stakeholder environments: Experiences of â€˜telecareâ€™ | Barlow,James;Bayer,Steffen;Curry,Richard | 2006 | Telecare | Comple-xity | Case Studies | 2nd |  | Planning and implementation complexity | Telecare is the delivery of care to users in their own homes. | Inconsistent definitions of tele-care/  Medicine  Little work on implementation of telecare |  |  |  |  | Implementation; Telecare; Telemedicine; Healthcare; Service innovation |  |
| Convoys of care: Theorizing intersections of formal and informal care | Kemp,Candace L.;Ball,Mary M.;Perkins,Molly M. | 2013 | Assisted Living | Intersection of formal/ informal care | Case Studies/ Evaluation of existing models | 2nd | Instigate further R&D | Insufficient research. Factors influencing interface. | How formal/ informal care services interact in AL. | Conflicting existing models:  Hierarchal, Substitution,  Complementary  Self-care not considered in existing research | Convoy of Care  Indivuals cared for in convoy of relationships. Convoy composition changes over time. | Builds on previous conceptual work |  | VA will commune with formal/ informal services | Formal care  Informal care  Long-term care  Theory  Assisted living | Family and home state affects AL. |
| A survey of values, technologies and contexts in pervasive healthcare | Detweiler,C. A.;Hindriks,K. V. | 2016 | Assisted Living | Ethics.  Values and Technologies | Review – Created a taxonomy | 2nd | Improve designs of AL technologies  Overview values and their relationships in elder-care | Privacy, well-being, and autonomy implications | Value sensitive design. Stakeholder values considered during design | Insufficient research on all permutations of stakeholder/ tech/ context. | List of values for design.  Stakeholders, Technology categories,  goals, and environments  Conclude that no simple means of identifying needs exists |  |  | VA is an AL technology. Relates to design process.  Cognitive decline category. | Value-sensitive design  Literature survey  Pervasive healthcare  Ethical issues | Body-worn sensors too invasive |
| Telecare services for aging people: Assessment of critical factors influencing the adoption intention | Sintonen,Sanna;Immonen,Mika | 2013 | Telecare |  | Empirical study – Mail survey | 1st | Assess how physical, psychological and cognitive limitations affect adoption of telecare to improve design | Inhibiting factors to technology use | Bringing healthcare to a service user in their own homes |  | Key concepts.  Prior experiences with ICT affect adoption of new tech. |  |  | Smart Homes. Needs of users. | Telecare  Aging consumers  Electronic services  Adoption intention | Good environment design is critical to motiviating elders.  Health more significant than age in tech adoption  A major factor that will disuade use of the VA is incapability. Patients cannot be expected to understand the limitations of the VA, meaning a robust and capable tool should be created initally to encourage adoption. |
| A perspective on intelligent devices and environments in medical rehabilitation | Cooper,Rory A.;Dicianno,Brad E.;Brewer,Bambi;LoPresti,Edmund;Ding,Dan;Simpson,Richard;Grindle,Garrett;Wang,Hongwu | 2008 | Smart Homes |  | Perspective  / Opinion | 2nd | Discuss potential of emerging technologies. | Lack of research |  |  |  |  |  | Section on cognitive disabilities | Rehabilitation; Intelligent systems; Machine learning; Physical impairment; Wheelchairs; Cognitive impairment | Scheduling tools. Use context to affect response of system. |
| Older adults' participation in the development of smart environments: An integrated review of the literature | Jacelon,Cynthia S.;Hanson,Allen | 2013 | Smart Homes | User advised Design contribution | Review | 2nd | Determine how ideas are being used. |  |  |  | User preferences are not taken into consideration enough. |  |  |  | Technology  Self-care  Independence  Smart homes  Older adults |  |
| The divide within: Older active ICT users position themselves against different â€˜Othersâ€™ | Kania-Lundholm,Magdalena;Torres,Sandra | 2015 | Tech Use | Digital Divide | Interviews | 1st | Determine how older active tech users engage with tech | Division between active older users and inactive older users | Perception that older people do not use technology | Digital divide is questionable |  |  |  | Elderly tech use, although mostly from active users. | ICT  Older active users  Positioning  Focus groups  Digital divide | Not about encouraging usage, but understanding it  Used email frequently |
| Report by the Spanish Foundation of the Brain on the social impact of Alzheimer disease and other types of dementia | Villarejo Galende,A.;Eimil Ortiz,M.;Llamas Velasco,S.;Llanero Luque,M.;LÃ³pez de Silanes de Miguel, C.;Prieto Jurczynska,C. | 2021 | Dementia | Social Impact | Review | 2nd | Understand social and economic impact to advise healthcare resourcing and awareness | Dementia prevalence in aging population | Dementia is the impairment of higher brain functions, commonly caused by Alzheimer’s |  | Dementia decreases QoL. Significant economic cost to families  Comorbidities (multi-illness) common with Dementia |  |  |  | Dependence;  Dementia;  Alzheimer disease;  Epidemiology;  Economic impact;  Costs | Prevalence vs Incidence |
| Supporting family carers through the use of information and communication technologyâ€”the EU project ACTION | Magnusson,L.;Hanson,E.;Brito,L.;Berthold,H.;Chambers,M.;Daly,T. | 2002 | Assisted living | Carer-support | Project Overview and Process | 1st | Improve QoL/ independence for elderly and carers through ICT | Dementia prevalence in aging population / Changing demographics |  |  | ACTION system. TV based. Computers in some settings.  Multimedia support, including  ACTION helped with Competence (training), Support (access to professionals/ less isolation)  Confidence (with tech)  Privacy concerns, early-adoptance prefered |  |  | Support and advice is appreciate and welcomed by carers. | Information and communication technology; Family carers; Older people; User-focused research; European project | International. Effectiveness score: WAMMI |
| Facilitating aging in place: A qualitative study of practical problems preventing people with dementia from living at home | Thoma-LÃ¼rken,Theresa;Bleijlevens,Michel H. C.;Lexis,Monique A. S.;de Witte,Luc P.;Hamers,Jan P. H. | 2018 | Assisted living - Dementia | Aging in place | Interviews | 1st | Gain insight into practical problems for plwd to inform care-nurses | Prevelance of dementia and aging population / Changing public opinion of care-homes vs home care |  |  | Decreased self- reliance  Safety related problems  Informal-care/ social network problems  Behavioral problems  Formal care problems  Cognitive decline |  | The key concerns of carers are patient self-reliance, safety, and their own mental well-being. | States problems faced by plwd at home: | Aging-in-place  Community-dwelling  Dementia  Focus groups  Nurses  Practical problems | 1/3 main problem areas pertains to care-givers |
| Nonintrusive system for assistance and guidance in smart homes based on electrical devices identification | Belley,Corinne;Gaboury,Sebastien;Bouchard,Bruno;Bouzouane,Abdenour | 2015 | Smart Homes / Assisted Living | Guidance | Project | 1st | Supporting independence at home | Growing resource strains necessitating home care where possible | Ambient Intelligence: Enhancing environment with sensors to create a smart system |  | Power monitoring and AI learning to identify dangerous behaviour of smart home residents | Small step in larger process |  | Power use algorithm could be applied to VA. | Assistive service  Guidance  Cognitive impairment  Activity recognition  Smart home  Load signature  Nonintrusive |  |
| Comorbidity of late life depression: an opportunity for research on mechanisms and treatment | Alexopoulos,George S.;Buckwalter,Kathleen;Olin,Jason;Martinez,Rick;Wainscott,Cynthia;Krishnan,K. Ranga R. | 2002 | Depres-son | Comorbidity | Perspective | 2nd | Understand relationships between conditions to advise pharma-logical treatments  Outline future research opportunities | Depression in older adults |  | Depression not easy to notice.  Can exacerbate cognitive decline |  |  |  | Dementia in relation to other conditions | Comorbidity, late-life depression, research |  |
| Robot-enabled support of daily activities in smart home environments | Wilson,Garrett;Pereyda,Christopher;Raghunath,Nisha;de la Cruz,Gabriel;Goel,Shivam;Nesaei,Sepehr;Minor,Bryan;Schmitter-Edgecombe,Maureen;Taylor,Matthew E.;Cook,Diane J. | 2019 | Assisted Living | Robotics | Project / Survey | 1st | Provide interactive support to individuals | Growing elderly population |  | Smart homes lack a tangible avatar |  | Existing care robots |  |  | Smart homes; Activity learning; Robot assistance |  |
| Rural families caring for a relative with dementia: barriers to use of formal services | Morgan,Debra G.;Semchuk,Karen M.;Stewart,Norma J.;Dâ€™Arcy,Carl | 2002 | Dementia | Rural care | Study / Focus Groups | 1st | Identify changllengs and opportunities for caring in rural areas  Estimate numbers of plwd in informal and formal care  Describe environments of care in rural areas  Advise QoL policies | Growing elderly population | Dementia - Deterioration of memory, language, and general competence  Rural Care – Care in remote areas. Often with poor formal facilities |  |  |  |  |  | Dementia; Rural; Barriers; Formal services; Family caregivers; Utilization; Canada | Informal family care preferred, but the reasons (preference, or lack of trust/ availability of formal care) unknown  Quantitative and Qualitative |
| Relational approach to knowledge engineering for POMDP-based assistance systems as a translation of a psychological model | GrzeÅ›,Marek;Hoey,Jesse;Khan,Shehroz S.;Mihailidis,Alex;Czarnuch,Stephen;Jackson,Dan;Monk,Andrew | 2014 | Assisted Living | Knowledge Engineering | Presentation / Case Study | 1st | Automated POMDP translation using learning models  Allow end-users (medical professionals and informal care givers) to develop context sensistive prompts (long-term goal) | Manual POMDP translation required | POMDP “partially observable Markov decision process”  Engine for determining what / when prompts are needed | POMDP successful as reasoning engine, but difficult to create  Prompts need to be appropriate | SyNdetic Assistance Process (SNAP) | Sensors and alarms have been tested in many prior studies.  Different reasoning engines have been developed such as ontologies, internet data, knowledge bases, and context-aware HCI  Reasoning engines need to be reliable. | Work done specifically to improve rationale engines behind AL devices | Aimed at designers of Assistive Tech. | Dynamic Bayesian networks  Knowledge engineering  Probabilistic planning  POMDPs  Reinforcement learning  Assistance systems | Does not require POMPD knowledge |
| Can AI artifacts influence human cognition? The effects of artificial autonomy in intelligent personal assistants | Hu,Qian;Lu,Yaobin;Pan,Zhao;Gong,Yeming;Yang,Zhiling | 2021 | Intelligent Digital Assistants | Effect on Human cognition | Survey | 1st |  | Little work done on how artificial autonomy (daily management) effects human behavior |  |  | Humans are able to relate to A.I. |  |  | Justification of AI to help plwd | Internet of Things (IoT)  Artificial intelligence  Intelligent personal assistant  Artificial autonomy  Mind perception | Not applied to elders specificly  Small sample size of IT literate people only |
| Understanding the Outcomes of Supplementary Support Services in Palliative Care for Older People. A Scoping Review and Mapping Exercise | Dodd,Steven R.;Payne,Sheila A.;Preston,Nancy J.;Walshe,Catherine E. | 2020 | Assisted Living | Services | Review | 2nd | Identify stakeholder desired outcomes of services and measure relevance | Support services exist, but limited techniques for assessing them |  | Effectiveness measurements do not take account of key outcomes | Key expected outcomes are: enriching relationships;  greater autonomy and perceived control;  knowing more; and improved mental health |  | Some Measure-ment techniques do not address the desired outcomes | Measuring success of VA. Key outcomes desired. Measure-ments that can be taken  Recording of wishes. | Aged, aged 80 and older, frail elderly, palliative care, patient-reported outcome measures, systematic review |  |
| Interventions to Support Family Caregivers in Pain Management: A Systematic Review | Chi,Nai-Ching;Barani,Emelia;Fu,Ying-Kai;Nakad,Lynn;Gilbertson-White,Stephanie;Herr,Keela;Saeidzadeh,Seyedehtanaz | 2020 | Carer support | Pain management techniques | Review | 2nd |  |  |  |  |  |  |  |  | Pain management, pain control, family caregivers, caregivers | Not dementia related |
| Smart homes â€” Current features and future perspectives | Chan,Marie;Campo,Eric;EstÃ¨ve,Daniel;Fourniols,Jean-Yves | 2009 | Smart Homes | Overview | Review | 2nd | Assess current state of technology | Growing elderly population / Shrinking young population of carers | Homes with sensors/ actuators/ non-obtrusive | No definition of smart home. |  |  | Good overview of existing projects | Similar tech to VA. Good for comparison  Advantages and dis-advantages listed | Smart home  e-Health  Wearable device  Assistive technology  Ageing | Shrinking of young population  Social distant dining with family  Some-what dated |
| Process of design and usability evaluation of a telepsychology web and virtual reality system for the elderly: Butler | Castilla,Diana;Garcia-Palacios,Azucena;BretÃ³n-LÃ³pez,Juana;Miralles,Ignacio;BaÃ±os,Rosa MarÃ­a;Etchemendy,Ernestina;Farfallini,Luis;Botella,Cristina | 2013 | Elderly Tech Use |  | Presentation | 1st | Assist Elderly users to access new technology | Reduce digital divide / Encourage digital immigrants to embrace tech |  |  | OS designed for elderly users | References ACTION | Elderly user design suggestions |  | Usability;  Virtual reality;  Social network; Elderly; Digital divide; Social networking service | Not related to dementia |
| User interface based on natural interaction design for seniors | Hsiao,Shih-Wen;Lee,Chu-Hsuan;Yang,Meng-Hua;Chen,Rong-Qi | 2017 | Elderly Tech Use | UI | Presentation | 1st | Assist Elderly users to access new technology | Growing Elderly Population |  |  |  | References Butler | Gesture controls | Section on graphic design could be relevant | Natural user interface  Natural interaction  Gesture recognition  Interpretive structural model  Affordance | Kinect, Motion sensor.  Gesture controls unsuited for individuals with poor co-ordination |
| Evaluation framework for ICT-based learning technologies for disabled people | Hersh,Marion | 2014 | Assisted Living | Disabilities | Evaluation |  | Identify gaps in tech provision and evaluating impact of tech |  | Assistive Tech: Equipment, Services, or processes that are used to overcome barriers to indepen-dence.  Based on social model of disability. |  | Framework |  |  |  | Evaluation methodologies  Lifelong learning  Disability studies  Cross-cultural projects | International  Odd prose. |
| Promoting ICT innovations for the ageing population in Japan | Obi,Toshio;Ishmatova,Diana;Iwasaki,Naoko | 2013 | Assisted Living | Promotion Strategies | Evaluation | 2nd | Promote Assistive Tech use among elderly and disabled | Aging population (Japan) |  | High cost saw massive drop in telecare.  Many policies ineffective due to economic reasons.  Lack of empirical evidence of AL success. | Gaming found to be motivational for elders.  Robot pets successful in connecting with plwd |  | 2001: Japan aims to have everyone able to use IT. |  | Accessibility  Policy development  e-health  e-Inclusion  ICT applications  Japan  Demographic aging  Persons with disabilities | Japan focused, but ideas applicable anywhere. |
| Acceptance and use of health information technology by community-dwelling elders | Fischer,Shira H.;David,Daniel;Crotty,Bradley H.;Dierks,Meghan;Safran,Charles | 2014 | Assisted Living | Community Tech adoption | Review | 2nd | Prepare and support patients and families with tech use | Aging population | Assitive Tech: Monitors/ sensors | Lack of empirical evidence of AL success.  UX issues, lack of human contact, training needed, and privacy raised as conerns by elderly users. | Growing adoption rates of IT among elders |  |  | Barriers to HIT adoption | Health information technology (HIT)  Elderly  Internet  Community-dwelling |  |
| Older adultsâ€™ perceptions of technologies aimed at falls prevention, detection or monitoring: A systematic review | Hawley-Hague,Helen;Boulton,Elisabeth;Hall,Alex;Pfeiffer,Klaus;Todd,Chris | 2014 | Assisted Living | Fall Prevention Perception | Review | 2nd | Overview Perceptions towards fall prevention tech | Prevalence of falling among elders / Lack of research into attitudes towards fall prevention |  | Large privacy concerns regarding surveillance.  User control desired (regarding false alarms). |  |  |  |  | Technology  Aged  Fall prevention  Behaviour | “Potential benefits such as independence, increased safety, convenience, increased social opportunities and improvements in function and confidence should be promoted when encouraging older adults to accept technologies.” |
| Mobile applications in an aging society: Status and trends | Plaza,Inmaculada;MartÃ­n,Lourdes;Martin,Sergio;Medrano,Carlos | 2011 | Elderly Tech use | Mobile Usage | Review | 2nd | Improve mobile design for elderly users | Aging population | Geronte-chknology:  Tech that meets needs for elderly users | Aging population will include current digital natives growing into strong elderly tech users.  Aging population will be more capable of working.  Elderly users need to be involved in design more. |  |  |  |  | Mobile applications  Older people  Quality of life  ICT | Notes how the |
| Should AI-Based, conversational digital assistants employ social- or task-oriented interaction style? A task-competency and reciprocity perspective for older adults | Chattaraman,Veena;Kwon,Wi-Suk;Gilbert,Juan E.;Ross,Kassandra | 2019 | Voice Assistants | Elder Interaction | Experiment | 1st | Identify if social- task- oriented VAs affect success rates among older adults | Difficulty for elders to use internet |  | Social comments reduce user confidence in control over VA during tasks  Cognitive overload, mixed results across studies. Social dialog seems to be a problem.  Study cannot be extrapolated to home-VAs | Low competency = task-oriented  High competency = social-oriented |  |  | Elder experience with VA | Digital assistants  Artificial intelligence  Conversation  Interaction style  User competency  Older adults | Not dementia  Social response theory – Humans will reciprocate personality (task/ mechanical or social/ casual) |
| Smart homes and home health monitoring technologies for older adults: A systematic review | Liu,Lili;Stroulia,Eleni;Nikolaidis,Ioanis;Miguel-Cruz,Antonio;Rios Rincon,Adriana | 2016 | Smart Homes | Elder Use | Review | 2nd | Identify readiness of elders to adopt tech, and evidence of aging-in-place support | Aging population,  Elders wanting to avoid carehomes |  |  | Lack of evidence of readiness for smart homes to support elderly.  31.72% of projects were experimental (artificial environments) only  Many studies included younger adults  Theoretical model of acceptance should be used by studies. |  |  |  | Frail elderly  eHealth  Telehealth  Gerontechnology  Smart homes | Limited timeframe 2010 - 2014 |
| A review of smart homesâ€”Present state and future challenges | Chan,Marie;EstÃ¨ve,Daniel;Escriba,Christophe;Campo,Eric | 2008 | Smart Homes | State of | Review | 2nd | Identify leading smart home projects | Aging population |  |  |  |  |  |  | Smart home  Elderly people | Outdated, superceded |
| Little arrangements that matter. Rethinking autonomy-enabling innovations for later life | LÃ³pez GÃ³mez,Daniel | 2015 | Assisted Living | Autonomy | Interviews | 1st |  |  | keeping control of  one's life as you age |  | Wariness and difficulty adapting to new technology, regardless of intention |  |  |  | Socio-technical arrangements  Autonomy  Innovation  Telecare  Ageing  Care | Single author, Outdated (interviews from 2004-2009) |
| Hey Alexa â€¦ examine the variables influencing the use of artificial intelligent in-home voice assistants | McLean,Graeme;Osei-Frimpong,Kofi | 2019 | Voice Assistants | Use of | Survey | 1st | Identify motivations in VA adoption | Rising popularity of VAs, limited understanding of influences to use | Natural language processing devices capable of HCI | Hands free nature of VA means traditional HCI models do not apply | Conceptual model of VA use  VAs used for convenicence, social presence, and status-boosting effects  VAs not used for entertainment  VA use hampered by privacy concerns  Larger households affect adoption |  |  | Develop social aspect of VA  VA useful for goal-oriented tasks | Voice assistants  Artificial intelligence  Machine learning  Technology adoption  Social presence  Uses and gratification theory | Mobile assistants came first  Limited Lit Review  Limited survey 724 responses |
| Information technologies for active and assisted livingâ€”Influences to the quality of life of an ageing society | Siegel,Christian;Dorner,Thomas Ernst | 2017 | Assisted Living | QoL | Review | 2nd | Expore influence of ICT on elders QoL | Aging demographic | Ambient AL: Using Tech in daily life to improve autonomy  QoL: WHO definition: Indiviual perception of position in life | More empirical evidence needed.  Hard to prove QoL improvements | AL affects QoL positively. |  |  | Smart homes  Dementia section | Ambient assisted living  Quality of life  Subjective health  Independent living  Active and assisted living  Assistive technologies |  |
| Iâ€™m in! Towards participatory healthcare of elderly through IOT. | Gkouskos,Dimitrios;Burgos,Jonathan | 2017 | Assisted Living | Participatory Design | Opinion |  | Outline areas of improvement for health related research | Aging demographic |  | Treating the elderly as passive makes them incapable of participating in their own health |  |  |  | Participation in design | IOT; Health; Elderly; Universal Design; Participation; Participatory Design | Premature frailty treatment is costly and insulting to patients  Not dementia focused |
| Electronic assistive technology for community-dwelling solo-living older adults: A systematic review | Song,Yu;van der Cammen, Tischa J. M. | 2019 | Assisted Living | Individuals living alone | Review | 2nd | Investigate effects of AL on solo-elders | Aging demographic  Preventing institutional-isation | Mental Health: state of well-being where a person can cope with the stress of normal life | Few AL devices can be personalised – Frailty is unique to individuals | Technical failures, difficult tech, and poor use-education were barriers to adoption  Lack of evidence of AL supporting dementia patients |  |  |  | Older adults  Single households  Assistive technology  Evidence  Wellbeing | Few Studies  Cognitive Impairment |
| Designing mobile technology for elderly. A theoretical overview | Iancu,Ioana;Iancu,Bogdan | 2020 | Assisted Living | Mobile Tech | Overview | 2nd | Informing design of tech for elderly | Aging demographic  Pressure on healthcare | Gerontechnology refers to the use of technology in helping  them improve the free living and social participation | Elders find tech stigmatizing and frustrating, but use it out of necessity  Elders have poor high-frequency hearing  Poor vision, balance, movement  There is evidence that personal deterioration is \*not\* a large hindrance to tech use  Mismatch between perceived needs and actual needs during design  Familiarity important  Touch screens found to be simpler to understand | lack of home access to internet, low  awareness of what technology can offer, inadequate marketing (mainly  targeting youngsters), inappropriate design, and anxiety |  |  | Design principals for elderly users  Voice control recomm-ended, speech rate should be considered  Volume control needs to be accessible  Single path of accomplish- ing task | Elders  Design  Technology  User-centered  Ease of use | Mentions theories of tech adoption  Raises point of new generation of elders being tech savvy, countered by argument that tech advances fast and a lag will always exist  (referencing another source, search “cohort”) |
| A systematic review of research into how robotic technology can help older people | Shishehgar,Majid;Kerr,Donald;Blake,Jacqueline | 2018 | Assisted Living | Robots | Review | 2nd | Identify how robots are used in care and effectiveness | Aging demographic |  |  | Robot dog and actual dog were liked equally by plwd and not  Voice control liked  Some robots unfavourable by family – fears of reduced human contact  Calls to family liked by plwd |  |  | Companion robots good for dementia (little supporting evidence in this paper) | Older adults  aged care  robotic technologies  robots and older adults’ problems | Intrusive tech (like large robots) are unfavourable |
| Modelling the quality of life goals of people living with dementia | Lockerbie,James;Maiden,Neil | 2020 | Dementia | QoL | Project / Review / Workshops | 1st | Language to model QoL goals | Poor understanding of QoL definition for plwd |  | Existing frameworks for dementia care evaluation are not suited for modern big data analysis | Framework for QoL in dementia |  |  |  | Dementia  Quality of life  Interactive toolset  Goal modelling | Worked with care workers but not plwd as plwd only see from their own viewpoint and cannot generalise |
| Technological Services in Shared Housing: Needs Elicitation Method from Home to Living Lab | Rumeau,P.;Vigouroux,N.;Campo,E.;Bougeois,E.;Vella,F.;Van Den Bossche,A.;Val,T.;Ancilotto,J. | 2020 | Assisted Living | Co-habitiation | Project / Interviews | 1st | Identify housing solutions for elderly and tools to assist |  |  | Thermal controls required  Frivolous or entertainment tools unwanted | Needs of shared habitats |  |  |  | Shared housing  Elderly  Needs elicitation method  Living lab  Technological services | Smart home also assessed  Simulated Voice Control |
| A Novel Semantic Approach for Intelligent Response Generation using Emotion Detection Incorporating NPMI Measure | Kumar, Deepak, and Santhanavijayan | 2020 | NLP | Sentiment | Project | 1st | Allow AI to grow by understanding human emotions | AI incapable of interpreting emotion  Bridge semantics and NLP |  |  | Dual tunnel approach to detect emotion from text/speech  Low processing requirements (8GB RAM) |  | NAVA (Noun Adjective Verb Adverb) used to determine sentiment | Text/Speech processing for VA  Would need adjustment for elders | Chunking; Folksonomies; Role-based Ontology; Semantic Similarity; Knowledge Graph |  |
| A post-processing method for detecting unknown intent of dialogue system via pre-trained deep neural network classifier | Lin and Xu | 2019 | NLP | Sentiment | Project | 1st | Improve VA to learn new intents | AI unable to detect intents they have not been trained for |  |  |  |  |  |  |  |  |
| Machine learning assistive application for users with speech disorders | Mulfari,Davide;Meoni,Gabriele;Marini,Marco;Fanucci,Luca | 2021 | NLP | Speech Disorders | Project | 1st |  |  |  |  |  | Relates to autonomy work and smart homes | TORGO database of speech disabled people | Speech affected by cognitive decline | Assistive technology  Automatic speech recognition  Dysarthria  Machine learning | Keyword spotting  Requires training data of speech disorder speech |
| Trust in Conversational AI: A Person-centered Approach | Hu,Peng;Lu,Yaobin;Gong,Yeming (Yale) | 2021 | Voice Assistants | Trust/ Humaness | Project | 1st | Improving AI capabilities and usefullness | Lack of trust in AI |  | Para-human, Para-machine, and asymmetric: categories of humanness perception  “We also find that voice humanization  cannot facilitate competence-related trust when AI devices’ language understanding is perceived as  poor.”  Imbalance between listening and speaking perceptions |  |  |  |  |  |  |
| Chatbots: History, technology, and applications | Adamopoulou,Eleni;Moussiades,Lefteris | 2020 | Voice Assistants | History | Literature Review | 2nd | Facilitate research | Privacy concerns affect trust |  |  |  |  |  |  | Chatbot  Pattern matching  Machine learning  Natural dialog interfaces  Natural language processing  Human–computer interaction |  |
| A Multi-Task Hierarchical Approach for Intent Detection and Slot Filling | Firdaus,Mauajama;Kumar,Ankit;Ekbal,Asif;Bhattacharyya,Pushpak | 2019 | NLP | Intent Detection | Project | 1st |  |  |  |  |  |  | Intent detection and slot filling |  | Multi-task  Hierarchical  Intent detection  Slot filling |  |
| Humanizing voice assistant: The impact of voice assistant personality on consumersâ€™ attitudes and behaviors | Poushneh,Atieh | 2021 | Voice Assistants | Personality |  |  |  |  |  |  | References McLean/ Osei-Frimpong |  |  |  | Voice assistant personality (VAP)  Voice interaction flow experience  Control  Focused attention  Exploratory behavior  Satisfaction  Willingness to continue using voice assistant  (VA) |  |