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included a clear social mandate, for two decades this human dimension has
been neglected amidst abbreviated references to sustainability that have
focused on bio-physical environmental issues, or been subsumed within a
discourse that conflated ‘development’ and ‘economic growth’. The widespread
failure of this approach to generate meaningful change has led to renewed
interest in the concept of ‘social sustainability’ and aspects thereof. A
review of the literature suggests, however, that it is a concept in chaos,
and we argue that this severely compromises its importance and utility. The
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purpose of this paper is to examine this diverse literature so as to clarify what might be meant by the term social sustainability and highlight different ways in which it contributes to sustainable development more generally. We present a threefold schema comprising: (a) ‘development sustainability’ addressing basic needs, the creation of social capital, justice and so on; (b) ‘bridge sustainability’ concerning changes in behaviour so as to achieve bio-physical environmental goals and; (c) ‘maintenance sustainability’ referring to the preservation – or what can be sustained – of socio-cultural characteristics in the face of change, and the ways in which people actively embrace or resist those changes. We use this tripartite of social sustainabilities to explore ways in which contradictions and complements between them impede or promote sustainable development, and draw upon housing in urban areas as a means of explicating these ideas.}
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Monitoring of Individual Animals in Zoos Using Deep Learning -- A Study on
Polar Bears},
    JOURNAL = {Animals},
    VOLUME = {12},
    YEAR = {2022},
    NUMBER = {6},
    ARTICLE-NUMBER = {692},
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    ISSN = {2076-2615},
    ABSTRACT = {The monitoring of animals under human care is a crucial tool
for biologists and zookeepers to keep track of the animals&rsquo; physical
and psychological health. Additionally, it enables the analysis of observed
behavioral changes and helps to unravel underlying reasons. Enhancing our
understanding of animals ensures and improves ex situ animal welfare as well
as in situ conservation. However, traditional observation methods are time-
and labor-intensive, as they require experts to observe the animals on-site
during long and repeated sessions and manually score their behavior.
Therefore, the development of automated observation systems would greatly
benefit researchers and practitioners in this domain. We propose an
automated framework for basic behavior monitoring of individual animals
under human care. Raw video data are processed to continuously determine the
position of the individuals within the enclosure. The trajectories
describing their travel patterns are presented, along with fundamental
analysis, through a graphical user interface (GUI). We evaluate the
performance of the framework on captive polar bears (Ursus maritimus). We
show that the framework can localize and identify individual polar bears
with an F1 score of 86.4%. The localization accuracy of the framework is
19.9&plusmn;7.6 cm, outperforming current manual observation methods.
Furthermore, we provide a bounding-box-labeled dataset of the two polar
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system is to replace traditional herding methods (e.g., dogs) so that a
large number (e.g., thousands) of farm animals such as sheep can be quickly
collected from a sparse status and then driven to a designated location
(e.g., a sheepfold). In this paper, we particularly focus on the motion
control of the barking drones. To this end, a computationally efficient
sliding mode based control algorithm is developed, which navigates the
drones to track the moving boundary of the animals' footprint and enables
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    abstract = {The research and development of diverse types of airships
are reviewed in this paper. The early history of non-rigid, semi-rigid, and
rigid airships is first introduced. It is followed by a description of a
wide variety of unconventional airships with distinct features due to unique
shape design, lifting gas, operation mode, or payload capability. The
current ongoing airship projects in the world are summarized and the
characteristics of hybrid airships and heavy-lift air vehicles are analyzed
in greater detail because of the increasing interest in their development.
The techniques of modeling, structural analysis, and simulation used during
airship development are reviewed. Also, the optimization of airship body
shape is briefly discussed. The main emphasis of this review is on the
consideration of the structural aspects.}
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  address = "{[Accessed in March 2023]}",
  year = {2023},
}
```

```
@misc{AERODRUM2018,
  author  = "{Aero Drum Ltd}",
  title   = "{5 m Outdoor Blimp}",
  url     = "{https://www.rc-zeppelin.com/outdoor-rc-blimps-5m.html}",
  year    = "{2018}",
  address = "{[Accessed in March 2023]}",
}

@misc{ROWNTREE2021,
  author  = {Dave Rowntree},
  title   = "{Indoor Blimp Sails Through The Air Using Ultrasonic
Transducers}",
  url     = "{https://hackaday.com/?p=508790}",
  urldate = "{November 2021}",
  year    = "{2021}",
  address = "{[Accessed in March 2023]}",
}

@article{PHEH2022,
title = {Spherical Indoor Coandă Effect Drone (SpICED): A Spherical Blimp
sUAS for Safe Indoor Use},
journal = {Drones},
volume = {9},
pages = {30},
year = {2022},
doi = {https://doi.org/10.3390/drones6090260},
url = {https://www.mdpi.com/2504-446X/6/9/260},
author = {Ying Hong Pheh and Shane Kyi Hla Win and Shaohui Foong},
abstract = {Even as human–robot interactions become increasingly common,
conventional small Unmanned Aircraft Systems (sUAS), typically multicopters,
can still be unsafe for deployment in an indoor environment in close
proximity to humans without significant safety precautions. This is due to
their fast-spinning propellers, and lack of a fail-safe mechanism in the
event of a loss of power. A blimp, a non-rigid airship filled with lighter-
than-air gases is inherently safer as it 'floats' in the air and is
generally incapable of high-speed motion. The Spherical Indoor Coandă Effect
Drone (SpICED), is a novel, safe spherical blimp design propelled by closed
impellers utilizing the Coandă effect. Unlike a multicopter or conventional
propeller blimp, the closed impellers reduce safety risks to the surrounding
people and objects, allowing for SpICED to be operated in close proximity
with humans and opening up the possibility of novel human–drone
interactions. The design implements multiple closed-impeller rotors as
propulsion units to accelerate airflow along the the surface of the
spherical blimp and produce thrust by utilising the Coandă effect. A cube
configuration with eight uni-directional propulsion units is presented,
together with the closed-loop Proportional–Integral–Derivative (PID)
controllers, and custom control mixing algorithm for position and attitude
control in all three axes. A physical prototype of the propulsion unit and
blimp sUAS was constructed to experimentally validate the dynamic behavior
and controls in a motion-captured environment, with the experimental results
compared to the side-tetra configuration with four bi-directional propulsion
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units as presented in our previously published conference paper. An up to 40
\% reduction in trajectory control error was observed in the new cube
configuration, which is also capable of motion control in all six Degrees of
Freedom (DoF) with additional pitch and roll control when compared to the
side-tetra configuration.}
}

@mastersthesis{HOLLINGER2005,
author = {Hollinger, Geoffrey and Pezzementi, Zachary and Flurie, Alexander
and Maxwell, Bruce},
year = {2005},
month = {01},
url =
{https://www.swarthmore.edu/sites/default/files/assets/documents/engineering
/ZachAlexGeoffFinalE90.pdf},
pages = {19},
title = {Design and Construction of an Indoor Robotic Blimp for Urban Search
and Rescue Tasks},
type={Senior Design Thesis},
institution = {Swarthmore College},
address = {Swarthmore College Senior Design Thesis},
}


@article{WANG2020,
title = {Disturbance compensation based controller for an indoor blimp
robot},
journal = {Robotics and Autonomous Systems},
volume = {124},
pages = {103402},
year = {2020},
issn = {0921-8890},
doi = {https://doi.org/10.1016/j.robot.2019.103402},
url = {https://www.sciencedirect.com/science/article/pii/S0921889019304683},
author = {Yue Wang and Gang Zheng and Denis Efimov and Wilfrid Perruquetti},
keywords = {Blimp robot, Navigation, Estimation, Uncertainty compensation,
Robust control},
abstract = {This paper presents the robust controller design for an indoor
blimp robot to achieve application such as the surveillance. The commonly
used 6 degrees of freedom dynamic model is simplified under reasonable
assumptions and decoupled into two independent parts. The blimp simplified
horizontal plane movement model is complemented with disturbance terms to
ensure the modeling accuracy, then it is transformed to a simpler form for
the ease of controller design. Next, the disturbance terms are evaluated by
the designed real-time estimator, and the perturbation estimates are
compensated in the conceived motion controller for cancellation of the
influence of disturbances. The performance and robustness of the disturbance
compensation-based controller are verified by both simulations and
experiments on the developed blimp robot. Finally, the results prove the
feasibility of the blimp robot in indoor surveillance application by
stabilizing itself at a fixed position or patrolling along a predefined
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path.}
}

@InProceedings{REIS2020,
    author="dos Reis, Alexandre Soares
    and Gielen, Elien
    and Wopereis, Ko
    and Pasternak, Marcel
    and Sooäär, Vaido
    and Schneider, Tobias
    and Duarte, Abel J.
    and Malheiro, Benedita
    and Justo, Jorge
    and Ribeiro, Cristina
    and Silva, Manuel F.
    and Ferreira, Paulo
    and Guedes, Pedro",
    editor="Silva, Manuel F.
    and Luís Lima, José
    and Reis, Luís Paulo
    and Sanfeliu, Alberto
    and Tardioli, Danilo",
    title="Smart Companion Pillow -- An EPS@ISEP 2019 Project",
    booktitle="Robot 2019: Fourth Iberian Robotics Conference",
    year="2020",
    publisher="Springer International Publishing",
    address="Cham",
    pages="465--476",
    abstract="This paper describes the design and development of a Smart
Companion Pillow, named bGuard, designed by a multinational and
multidisciplinary team enrolled in the European Project Semester (EPS) at
Instituto Superior de Engenharia do Porto (ISEP) in the spring of 2019.
Nowadays, parents spend most of the day at work and become naturally worried
about the well-being of their young children, specially babies. The aim of
bGuard is to provide a 24-hour remotely accessible baby monitoring service,
contributing to reduce parenting stress. The team, based on the survey of
related products, as well as on marketing, sustainability, ethics and
deontology analyses, developed a remotely interactive Smart Companion Pillow
to monitor the baby's health and room air quality. The collected data, once
it is saved on an Internet of Things (IoT) platform, becomes remotely
accessible. The bGuard pillow, thanks to its shape, reduces the risk of the
baby rolling from back to tummy, lowering the risk of Sudden Infant Death
Syndrome (SIDS).",
    isbn="978-3-030-36150-1"
}

@article{LEE2018,
    title = "Design and Implementation of Monitoring System Architecture for
Smart Bicycle Platform",
    journal = "Procedia Computer Science",
    volume = "134",
```

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    pages = "464 - 469",
    year = "2018",
    note = "The 15th International Conference on Mobile Systems and
Pervasive Computing (MobiSPC 2018) / The 13th International Conference on
Future Networks and Communications (FNC-2018) / Affiliated Workshops",
    issn = "1877-0509",
    doi = "https://doi.org/10.1016/j.procs.2018.07.182",
    url =
"http://www.sciencedirect.com/science/article/pii/S1877050918311475",
    author = "YeongKyun Lee and Jongpil Jeong",
    keywords = "Remote monitoring, Wireless sensor network, Smart phone
based monitoring, Bicycle monitoring",
    abstract = "This paper proposes the smart phone as a central monitoring
device for the bicycle and the WIFI network as a communication channel
between the smart phone and the sensors. It will show how to implement the
sensor boards with WIFI and relevant firmware, the software on the smart
phone to communicate with the sensor boards and the evaluation results with
the open source software called Goldencheetah. The knowledge in this paper
is not limited to bicycles but can be expanded to any other monitoring
systems using the remote sensors based on smart phone."
}

@article{RANJITH2020,
    title = "Prediction of Exhaust Gas Emission characteristics using Neem
oil blended bio- diesel in diesel engine",
    journal = "Materials Today: Proceedings",
    volume = "21",
    pages = "870 - 875",
    year = "2020",
    note = "International Conference on Recent Trends in Nanomaterials for
Energy, Environmental and Engineering Applications",
    issn = "2214-7853",
    doi = "https://doi.org/10.1016/j.matpr.2019.07.706",
    url =
"http://www.sciencedirect.com/science/article/pii/S2214785319329116",
    author = " Ranjith and V. Velmurugan and S. Thanikaikarasan",
    keywords = "Accelerometer, Diesel engine, Neem oil, Renewable,
Alternative, Viscosity, Volatility",
    abstract = "As a renewable, sustainable and alternative fuel for diesel
engine, biodiesel instead of diesel has been increasingly fuelled to study
its effects on engine performances and emissions. Biodiesel production is a
modern and technological area for researchers due to constant increase in
the prices of petroleum, diesel, and environmental advantages. Increased
environmental awareness and depletion of resources are driving industry to
develop viable alternative fuels from renewable resources that are
environmentally more acceptable. Neem oil is a potential alternative fuel.
The most detrimental properties of neem oils are its high viscosity and low
volatility, and these cause several problems during their long duration
usage in diesel engines. From the review it is found that the use of
biodiesel leads to the substantial reduction in CO2, HC, CO and NOx
emissions."
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}

@article{SOBHANI2018,
    title = "Impact of smartphone distraction on pedestrians crossing
behaviour: An application of head-mounted immersive virtual reality",
    journal = "Transportation Research Part F: Traffic Psychology and
Behaviour",
    volume = "58",
    pages = "228 - 241",
    year = "2018",
    issn = "1369-8478",
    doi = "https://doi.org/10.1016/j.trf.2018.06.020",
    url =
"http://www.sciencedirect.com/science/article/pii/S1369847818300998",
    author = "Anae Sobhani and Bilal Farooq",
    keywords = "Head-mounted immersive virtual reality, Pedestrian,
Distracted street crossing, Multi-tasking, Smartphone use, Surrogate
analysis, Smart LED lights safety treatment",
    abstract = "A novel head-mounted virtual immersive/interactive reality
environment (VIRE) is utilized to evaluate the behaviour of participants in
three pedestrian road crossing conditions while 1) not distracted, 2)
distracted with a smartphone, and 3) distracted with a smartphone with a
virtually implemented safety measure on the road. Forty-two volunteers
participated in our research who completed thirty successful (complete
crossing) trials in blocks of ten trials for each crossing condition. For
the two distracted conditions, pedestrians are engaged in a maze-solving
game on a virtual smartphone, while at the same time checking the traffic
for a safe crossing gap. For the proposed safety measure, smart flashing and
color changing LED lights are simulated on the crosswalk to warn the
distracted pedestrian who initiates crossing. Surrogate safety measures as
well as speed information and distraction attributes such as direction and
orientation of participants head were collected and evaluated by employing a
Multinomial Logit (MNL) model. Results from the model indicate that females
have more dangerous crossing behaviour especially in distracted conditions;
however, the smart LED treatment reduces this negative impact. Moreover, the
number of times and the percentage of duration the head was facing the
smartphone during a trial and a waiting time respectively increase the
possibility of unsafe crossings; though, the proposed treatment reduces the
safety crossing rate. Hence, our study shows that the smart LED light safety
treatment indeed improves the safety of distracted pedestrians and enhances
the successful crossing rate."
}

@article{OBAYASHI2020,
    title = "Pilot and Feasibility Study on Elderly Support Services Using
Communicative Robots and Monitoring Sensors Integrated With Cloud Robotics",
    journal = "Clinical Therapeutics",
    year = "2020",
    issn = "0149-2918",
    doi = "https://doi.org/10.1016/j.clinthera.2020.01.001",
    url =
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"http://www.sciencedirect.com/science/article/pii/S0149291820300278",
    author = "Kazuko Obayashi and Shigeru Masuyama",
    keywords = "activities of daily living, cloud robotics, communicative
robot, elderly care, robotics utilization, support services",
    abstract = "Purpose
    This pilot before-after study investigated the possible effects of
communicative robots, used with a sensing system supported by cloud
robotics, in caring for elderly people.
    Methods
    Two elderly women in nursing homes and 4 care workers participated in
the trial. The overnight life rhythm assessments of the study participants
and care workers were surveyed to determine when and how the robots should
be integrated into care. The system consisted of the robot Sota, a
noncontact vital sensor and a sheet-shaped bed sensor. Real-time sensing
data and conversations between the participants and robots were sent to the
servers, prompting a quick verbal response by the robot supported by cloud
robotics.
    Findings
    Care workers devoted 3 h to the maintenance of records during their most
stressful periods. Automatic recording of vital information using robot
sensors can improve the quality of nursing care work. Care workers' stress
levels were maximized when responding to nurse calls. Temporary responses to
nurse calls by the robots may help to effectively reduce the burden on
nursing care workers. Robots can stimulate elderly people to communicate
more with others (P < 0.05). Appropriate vocalization by communicative
robots may prevent the deterioration of quality of life in elderly
individuals.
    Implications
    Communicative robots, used with a sensing system, may stimulate elderly
people to activate a communication link with others and help care workers to
effectively reduce the burden during the night shift. A follow-up study
involving a broader research program on communicative robots and elderly
care would be beneficial."
}

@article{THAPA2019,
    title = "Study on the wintry thermal improvement of makeshift shelters
built after Nepal earthquake 2015",
    journal = "Energy and Buildings",
    volume = "199",
    pages = "62 - 71",
    year = "2019",
    issn = "0378-7788",
    doi = "https://doi.org/10.1016/j.enbuild.2019.06.031",
    url =
"http://www.sciencedirect.com/science/article/pii/S0378778819306309",
    author = "Rita Thapa and Hom Bahadur Rijal and Masanori Shukuya and
Hikaru Imagawa",
    keywords = "Nepal, Earthquake, Temporary shelters, Indoor air
temperature, Thermal insulation, Thermal improvement",
    abstract = "After massive earthquake 2015, thousands of Nepalese who
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lost their permanent houses by the hardest hits were forced to live in
makeshift temporary shelters. The field measurement on indoor thermal
environment in five shelters was conducted in one of the district hit by the
earthquake, Lalitpur, in winter. The mean indoor and outdoor air
temperatures during the measured nighttime were found to be 10.3 °C and 7.6
°C, respectively, and the nocturnal indoor air temperature remained below
the lowest acceptable temperature of 11 °C. This result assured that these
shelters are not good for winter and must create various problems. We
therefore analyzed the thermal characteristics of those shelters based on
the measured results in order to seek a possible improvement. The total heat
loss coefficient estimated per floor area in five shelters ranged from 11.3
to 15.2 W/(m2·K); that is thermal insulation was very low. We made a simple
numerical analysis on the variation of indoor air temperature with the
assumption of improved thermal characteristics and thereby found that it
needs to be reduced about 2~7 W/(m2·K) to have the indoor air temperature
higher than 11 °C for 70\% of the whole nocturnal hours. Such reduction of
heat loss was found to be realized by adding affordable materials, e.g.,
cellular polyethylene foam and clothes for respective walls and roof. Thus,
the knowledge obtained from this study should hopefully be applied to actual
improvement of indoor thermal environment in existing shelters and also to a
development for the preparation against future disaster."
}

@MISC{gartner2021,
  author  = "{Gartner}",
  title   = "{Gartner Magic Quadrant for Data Science and Machine Learning
Platforms}",
  url     = "{https://www.gartner.com/en/documents/3998753}",
  urldate = "{March 2021}",
  year    = "{2021}",
  address = "{[Accessed in April 2021]}",
}

@MISC{android41,
  author  = "{Android Open Source Project}",
  title   = "{Android Developers: Android 4.1 APIs}. January 2015. [Accessed
in April, 2017]",
  url     =
"{http://developer.android.com/about/versions/android-4.1.html}",
  urldate = "{May 2014}",
  year    = "{2014}",
  address = "{[Accessed in April 2017]}",
}

@MISC{cloudexpo2008,
  AUTHOR  = "{Cloud Expo}",
  title   = "{Twenty-One Experts Define Cloud Computing}",
  url     = "{http://cloudcomputing.sys-con.com/node/612375}",
  urldate = "{October 2013}",
  year    = "{2008}",
  address = "{[Accessed in April 2021]}",
```

```
}

@BOOK{bandyopadhyay2013unsupervised,
  title={Unsupervised Classification: Similarity Measures, Classical and
Metaheuristic Approaches, and Applications},
  author={Bandyopadhyay, Sanghamitra and Saha, Sriparna},
  year={2013},
  isbn={978-3-642-32450-5},
  publisher={Springer},
  address = {Berlin, Germany},
  doi = {10.1007/978-3-642-32451-2}
}


@ARTICLE{llorente2009virtual,
  author  ="{Sotomayor, B. and Montero, Ruben S. and Llorente, I.M. and
Foster, I.}",
  journal ="Internet Computing, IEEE",
  title   ="{Virtual Infrastructure Management in Private and Hybrid
Clouds}",
  year    ="{2009}",
  month   ="{Sept}",
  volume  ="{13}",
  number  ="{5}",
  pages   ="{14-22}",
  abstract = {One of the many definitions of "cloud" is that of an
infrastructure-as-a-service (IaaS) system, in which IT infrastructure is
deployed in a provider's data center as virtual machines. With IaaS clouds'
growing popularity, tools and technologies are emerging that can transform
an organization's existing infrastructure into a private or hybrid cloud.
OpenNebula is an open source, virtual infrastructure manager that deploys
virtualized services on both a local pool of resources and external IaaS
clouds. Haizea, a resource lease manager, can act as a scheduling back end
for OpenNebula, providing features not found in other cloud software or
virtualization-based data center management software.},
  doi = {10.1109/MIC.2009.119}
}

@article{Mulder2013428,
    title = "Development of a Motion System for an Advanced Sailing
Simulator ",
    journal = "Procedia Engineering ",
    volume = "60",
    number = "0",
    pages = "428 - 434",
    year = "2013",
    note = "6th Asia-Pacific Congress on Sports Technology (APCST) ",
    issn = "1877-7058",
    doi = "http://dx.doi.org/10.1016/j.proeng.2013.07.030",
    url =
"http://www.sciencedirect.com/science/article/pii/S1877705813010813",
```

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    author = "Fabian A. Mulder and Jouke C. Verlinden",
    keywords = "Sailing",
    keywords = "Dinghy",
    keywords = "Virtual reality",
    keywords = "Training simulation",
    keywords = "Force feedback",
    abstract = "Abstract To train competitive sailing in a virtual setting,
motion of the boat as well as haptic feedback of the sail lines is
essential. When discussing virtual environments (VEs) the concept of
presence is often used. In this study we develop a sailing simulator motion
system to research what factors contribute to the participants' sensation of
presence when sailing in a VE. The developed simulator includes the
development of a mainsheet force feedback system and a novel motion
platform, connected to a high-quality graphics sailing simulation. In future
research, the developed system will be used to study which sail training
type can be performed in simulated environments, and if the system can be
used as a valid testbed for perception-action experiments."
}
```

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