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RESEARCH FIELD KEYWORDS

Experimental and behavioral economics, Decision-making, Virtual Reality, Avatars, Risk attitudes, Cooperation

EDUCATION

Ph.D. in Experimental Economics (2nd year) Since October 2023
GREDEG, CNRS – Université Côte d'Azur

Title : "*The impact of identification with an avatar on behavior in economics and strategic decision-making: application of Experimental Economics within Virtual Reality"*
Supervisors: Paolo ZEPPINI (Associate Professor, HDR) and Michela CHESSA (Associate Professor, HDR)

The main idea of the thesis project is to study the effects and implications of Virtual Reality (VR) for economic decision-making. VR has grown in popularity in recent years as technological advancements have contributed to a better experience, opening an entirely new environment for research on user behavior. In a VR world, individuals have the freedom to take any form and role they like, designing an avatar having a different appearance with respect to their human body. The connection between the physical body and the movements of the digital representation is ensured by the VR technology, creating a new experience of the 'self', and representing therefore a potential reason for change in the ways we act and interact with each other. The purpose of this study is to inspect how hiding behind our 'second personality' could create biases and distortions in our choices and see if the preferences and beliefs of economic agents differ with respect to reality. This Ph.D. project has a strong interdisciplinary context, as it forms a link with research in computer science on the application of VR and the consequent immersion of the users. This research's original contribution and innovation is to bring VR into the laboratory environment of experimental economics. The study will be conducted with the support of the LEEN (Laboratory of Experimental Economics in Nice) and in collaboration with the computer science laboratory of Perception and Interaction of the University of Genova, a structure composed of engineers specializing in the research field of VR. To understand how our change of appearance when being embodied by an avatar in VR affects our behavior, we will apply formally established protocols to study the choices people make within a controlled laboratory setting. We plan to conduct studies mainly on risk attitudes and strategic decision-making, such as cooperation decisions and investment choices, which are fundamental research themes in the field. Finally, VR technologies will provide conditions for immersion into an easily modifiable setting, allowing us to tackle the limitations of the physical world. The experimental findings can contribute to the understanding of the concept of the sense of presence and how it can be improved, bringing advancement to currently used methods of research using VR in very diverse areas, from the medical field to wealth management.

MSc Affluencers & Luxury Business 2021-2023
Université Côte d'Azur

Master 2 Master 2 of Law, Economics and Management, International Trade 2019-2020
Université Côte d'Azur, IAE Graduate School of Management

Master 1 Research LLCER EMA Études du monde anglophone 2018-2019
Université Côte d'Azur

Master 2 Master 2 of Law, Economics and Management, Tourism Management 2015-2017

Bachelor of LEA, Foreign Affairs and Trade, 2012-2015
(English and Spanish-speaking countries)

ARTICLES

Journal publications

Kaloyana Naneva, 2024. "**Can We 'Solve' Anonymity in Economic Experiments? Virtual Humans in High-Immersive Environments as a Method of Identification**," Journal of Behavioral Economics for Policy, Society for the Advancement of Behavioral Economics (SABE), vol. 8(S1), pages 33-39, December.

Abstract: The objective of this paper is to explore the potential of using virtual humans in Virtual Reality environments as a method to ensure participant anonymity while at the same time maintaining the dynamics of face-to-face interactions. Anonymity is a fundamental principle in experimental design, applied to avoid external pressures such as social desirability bias, concerns about social image, social sanctions, and attraction - or behavior - based preferences. It is essential to allow subjects' decisions to reflect their true preferences in private circumstances. However, increased anonymity has been associated with a rise in the perceived social distance between players. While previous identification methods-such as showing a photograph or sharing a participant's name-have proven effective in encouraging contributions, they often compromise anonymity and deviate from established experimental protocols. In contrast, in our daily lives, we can seldom ensure complete anonymity in our actions. The study proposes the use of interactive avatars within highly immersive VR environments as an identifier providing anonymity while simultaneously reducing social distance by mimicking the nuances of real-world human engagements. Furthermore, virtual humans provide control over the social connectedness within interactions as their appearance and behavior can be adapted to isolate effects that are difficult to study in real-life settings.

Preliminary papers

Chessa, M., Chessa, M., Gerini, L., Martini, M., Naneva, K., Pizzo, M., Solari, F., & Zeppini, P., "**Cooperation in Virtual Reality: Exploring Environmental Decision-Making through a Real-Effort Threshold Public Goods Game**".

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Abstract: This study investigates the impact of Virtual Reality (VR) as an innovative method to study cooperative behaviour in experimental economics, focusing on how interaction with the digital representation (avatar) of the peer influences decision-making. Participants begin the experiment by sharing the same virtual environment modelled after the seaside town of Positano (Italy), together with the partner subject, under one of two conditions: with or without an avatar. This initial phase allows them to explore the virtual space, and in the condition with avatar representation, experience social presence—evoking the sense of another person being present in the shared environment. The approach addresses a key limitation of traditional experimental procedures in economics: anonymity which, while essential for unbiased decision-making, removes important social cues that influence cooperation in real-world interactions. By demonstrating how avatars can enable identification, VR introduces a "humanized" form of participants without revealing information about the true self. Subjects proceed with a two-player threshold public goods game, framed as a real-effort recycling task, where they must decide whether to prioritize individual gains or contribute to a common good to meet a shared recycling objective. Reaching the recycling threshold will have a positive effect on Positano's appearance and a negative one otherwise. Unlike conventional laboratory experiments, VR allows researchers to design realistic decision-making scenarios mimicking everyday actions, adding context to the classical in-lab experimental task as participants can tangibly experience the consequences of their collective actions on their environment.

Chessa, M., Naneva, K., & Zeppini, P. "**From Experiments to Experiences: The Influence of Virtual Reality on Probability Judgements**".

This project is devoted to the exploration of Virtual Reality (VR) technologies as an innovative method for testing individuals' economic behavior allowing the replication of real-world situations within a

controlled environment. Our main objective is to understand potential deviations in the choices decision agents make when experiencing a VR simulation, compared to empirical findings within conventional laboratory conditions. In particular, we focus on the empirically grounded phenomenon of probability weighting in choice under risk, represented by an inverse S-shape function describing the tendency of overweighting small probabilities and underweighting moderate and high probabilities. We analyze potential variations of the probability weighting function between two treatments, one with the use of VR technologies, and another one involving abstract monetary gambles. We will investigate the theoretical framework of Rank-dependent expected utility (RDEU) by implementing the trade-off method developed by Wakker and Deneffe (1996) and a parameter-free elicitation of the probability weighting function. The selected experimental framework will imply a VR simulation of climate change irregularities and their effects in the context of agricultural decision-making between varieties of crops. Climate-resilient crops allow producers to adapt to weather conditions such as increased drought and heatwaves. Our study will therefore provide evidence for understanding if their rates of adoption increase when experimental subjects experience a VR-induced extreme environmental event compared to when subjects perform a standard framed but non-immersive choice task.

PROFESSIONAL RESEARCH EXPERIENCE

Advances in Game Theory and Experimental Economics, Master Internship February-April 2023
Supervisor : Associate Professor Michela Chessa (HDR)

Application of experimental economics in Virtual Reality, Master Internship May-July 2023
Supervisor: Professor Agnès FESTRÉ

TEACHING EXPERIENCE

Teaching Assistant, Microeconomics 2 Semester 2, Academic year 2024-2025
4 classes of 6 lectures, approximately 200 students, Bachelor's First year

Teaching Assistant, International Trade Semester 2, Academic year 2024-2025
2 classes of 6 lectures, approximately 30 students Bachelor's Third year

COMMUNICATIONS

GREDEG Ph.D. workshop January, 2024
Chessa, M., Naneva, K., & Zeppini, P. "From Experiments to Experiences: The Influence of Virtual Reality on Probability Judgements".

ASFEE 2024, Grenoble, France June, 2024
Chessa, M., Naneva, K., & Zeppini, P. "From Experiments to Experiences: The Influence of Virtual Reality on Probability Judgements".

Certosa di Pontignano Workshop October, 2024
Organisors: Angela Sutan and Giuseppe Attanasi
Chessa, M., Chessa, M., Gerini, L., Martini, M., Naneva, K., Pizzo, M., Solari, F., & Zeppini, P., "Cooperation in Virtual Reality: Exploring Environmental Decision-Making through a Real-Effort Threshold Public Goods Game".

PROFESSIONAL TRAINING

Ph.D. courses, DESPEG doctoral school, EUR ELMI
Applied Statistics, Academic Presentation and Writing, Advanced Microeconomics, Decision Theory, Experimental Economics 1 and 2, Python.

Soleto Summer School July 2023
Experimentrics & Behavioral Economics Soleto, Italy

PROFESSIONAL SERVICE

Conference organisation assistant
IAREP-SABE 2023, Nice, France

LANGUAGES

Bulgarian : Native language
English: Advanced language skills
French : Advanced language skills
Spanish : Intermediate language skills

COMPUTER SKILLS

Stata (intermediate)
Python, otree (beginner)
LaTeX
MS Office

OTHER

Driving licence, Category B

Chères collègues doctorantes, chers collègues doctorants,

Actuellement en deuxième année de doctorat en économie, je me présente aux élections des représentants des doctorants au sein de l'école doctorale DESPEG avec l'envie de contribuer activement à la vie de notre communauté.

Ayant moi-même récemment traversé les premières étapes du doctorat, je mesure à quel point cette période peut être dense, entre les démarches administratives, l'intégration, les premiers travaux de recherche et l'équilibre à trouver dans notre quotidien. C'est pourquoi je souhaite être un point de repère pour les doctorants nouvellement arrivés, en facilitant leur adaptation, en partageant des informations utiles et en encourageant les échanges entre pairs.

Être à l'écoute des besoins de chacun, porter vos idées ou propositions lors des réunions, et renforcer les liens entre les doctorants sont au cœur de mon engagement. Je tiens également à soutenir l'organisation d'événements, à la fois conviviaux et scientifiques, pour encourager les rencontres, les discussions de recherche et les dynamiques collectives.

Je vous remercie par avance pour votre confiance et reste à votre disposition pour en discuter.

Cordialement,

Kaloyana Naneva