FovHolo: Fovea inspired holographic near-eye display

PHD STUDENT POSITION FINANCED BY THE NATIONAL CENTER OF SCIENCE (NCN)

The PHD position is available within the doctoral school No. 3 of Warsaw University of Technology, Faculty of Mechatronics. Recruitment 1.08.2019 - 31.08.2019.
Employment within the project NCN FoVHolo from 01.10.2019.

Offered employment conditions:
A three-year contract financed by the National Science Center. A PhD student during the term of the contract will receive a scholarship in the amount of PLN 4,500 per month.

Task description: Research problem concerns augmented reality technology that is going to change the way we interact in our lives. Holography is the only technique supporting all visual ques of human eyes. Research aims to overcome the technological limitations of holographic displays, which requires a huge amount of pixels. Concept of the holographic near-eye display will be introduced, which mimics the human visual system having variable resolution in the field of view. It means that the highest image resolution will be provided only at the gaze direction of the observation. Thus, proposed foveated holographic imaging concept enables large field of view and, simultaneously, large resolution using a smaller number of pixels. The optical system and numerical methods of holographic content generation and processing will be based on eye-like, non-uniform resolution in software and holographic hardware, which can be dynamically changed according to the eye gaze direction. The PHD may solve numerical or experimental research problems.

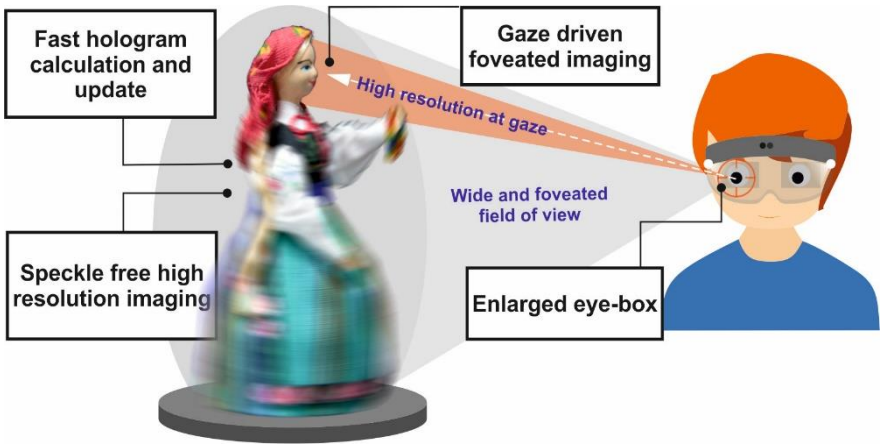

Figure 1. Envisioned objectives of FovHolo project.

Requirements:

- Completed higher education (Master degree) in photonics, optics or physics.
- Experience in conducting numerical or experimental research in the field of optical and photonic methods.
- Programming in Matlab environment, or other.
- Knowledge of English, communicativeness, creativity in solving problems, independence, strong motivation to work and carry out scientific research.

Additional information related to recruitment should be directed to dr hab. eng. Tomasz Kozacki in the form of an e-mail (t.kozacki@mchtr.pw.edu.pl) or directly (Faculty of Mechatronics of Warsaw University of Technology, św. Andrzeja Boboli 8, room 517A)