Project Group

3D Environment Based Intelligent Systems Engineering of Advanced Systems (B.A.T.M.A.N.)

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Agenda

Fraunhofer IEM

Preliminary work

Project Group: B.A.T.M.A.N.

Overview of the Fraunhofer Society
Application-oriented research for the immediate benefit of the economy and society

26 600
Employees

76 Institutes and
research facilities

Hauptstandorte ●
Nebenstandorte ○

Itzehoe, Rostock, Lübeck, Stade, Hamburg, Bremerhaven, Oldenburg, Bremen, Wolfsburg, Berlin, Hannover, Braunschweig, Potsdam, Wildau, Lemgo, Goslar, Magdeburg, Gelsenkirchen, Münster, Paderborn, Hamm, Halle, Cottbus, Oberhausen, Soest, Göttingen, Schwarzheide, Duisburg, Dortmund, Schkopau, Schmallenberg, Kassel, Leuna, Leipzig, Willich, Köln, Dresden, Zittau, Aachen, Sankt Augustin, Jena, Freiberg, Bonn, Erfurt, Euskirchen, Wachtberg, Gießen, Hermsdorf, Chemnitz, Remagen, Ilmenau, Frankfurt, Hanau, Zwickau, Alzenau, Coburg, Münchberg, Mainz, Aschaffenburg, Bayreuth, Bamberg, Darmstadt, Waischenfeld, Würzburg, Erlangen, Kaiserslautern, Wertheim, Fürth, St. Ingbert, Mannheim, Nürnberg, Sulzbach-Rosenberg, Sulzbach, Saarbrücken, Karlsruhe, Pfinztal, Regensburg, Straubing, Ettlingen, Esslingen, Stuttgart, Deggendorf, Augsburg, Freising, Garching, Freiburg, München, Rosenheim, Kandern, Weßling, Prien, Efringen-Kirchen, Holzkirchen

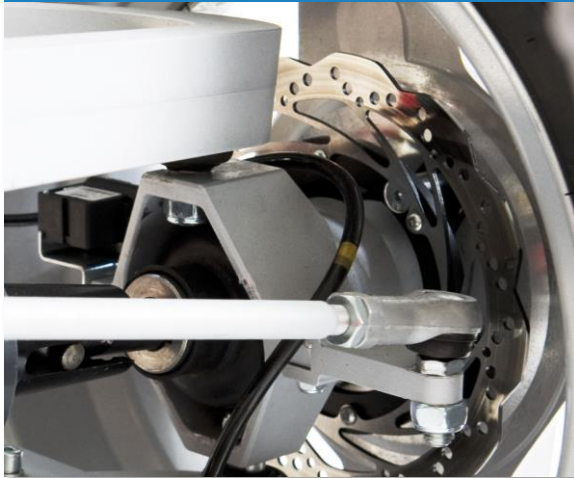
Fraunhofer Institut für Entwurfstechnik Mechatronik IEM Paderborn

Prof. Trächtler, Prof. Dumitrescu, Prof. Bodden

Distinct orientation towards **midsize companies**

> **110 Employees**

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UNIVERSITÄT PADERBORN
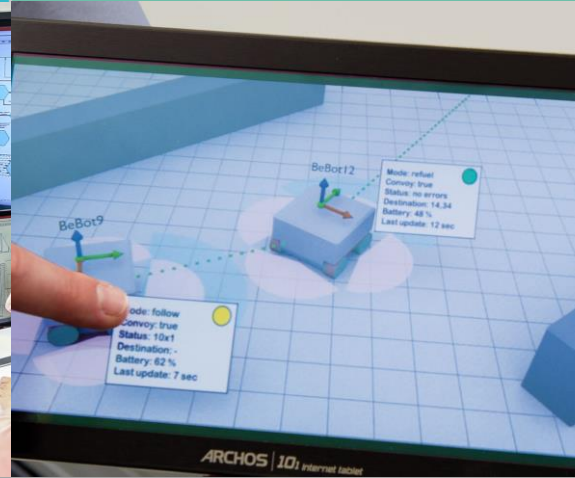
Fraunhofer
IEM

Fraunhofer IEM
Fields of expertise

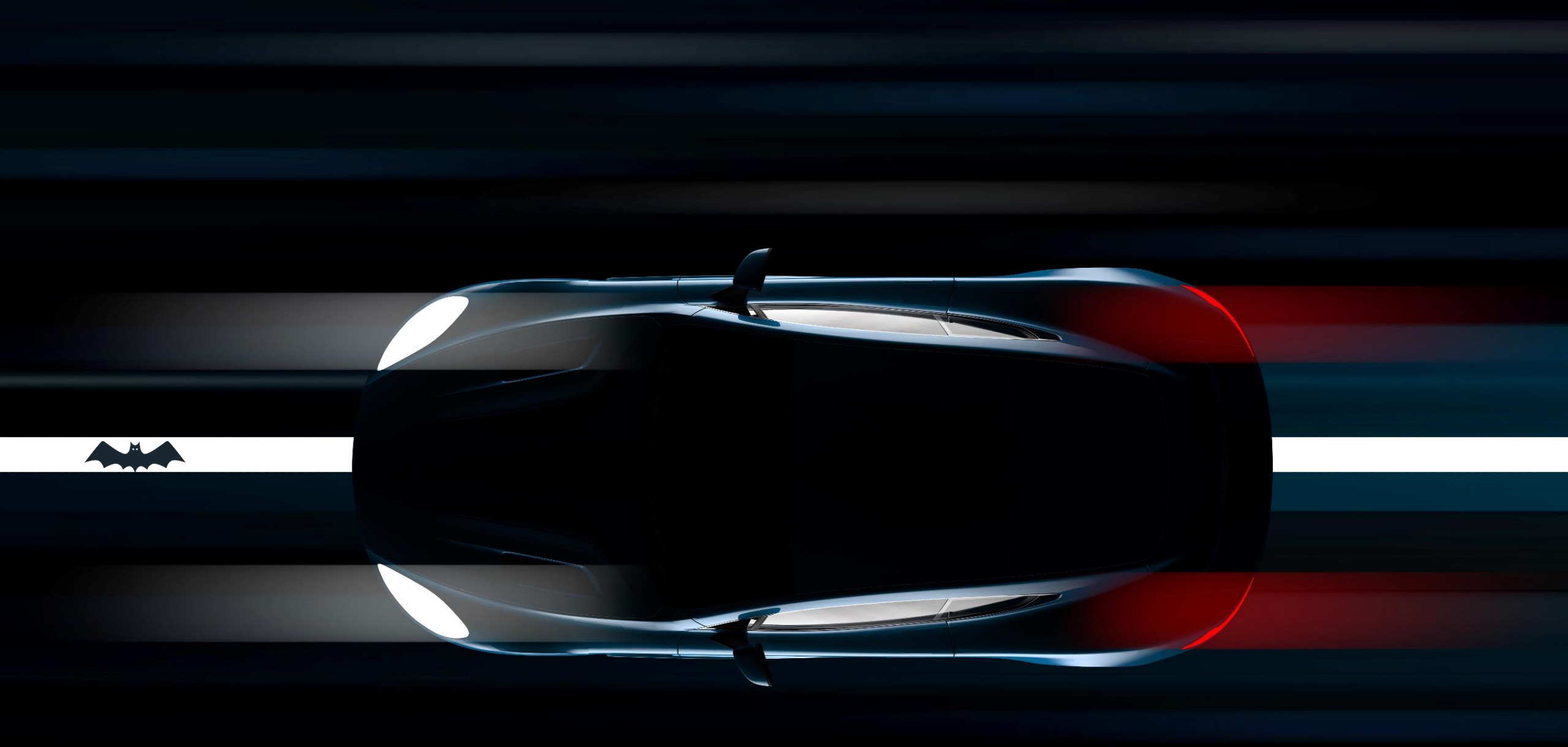| Intelligenz in technischen Systemen | Systems Engineering | Virtual Prototyping | IT-Security |

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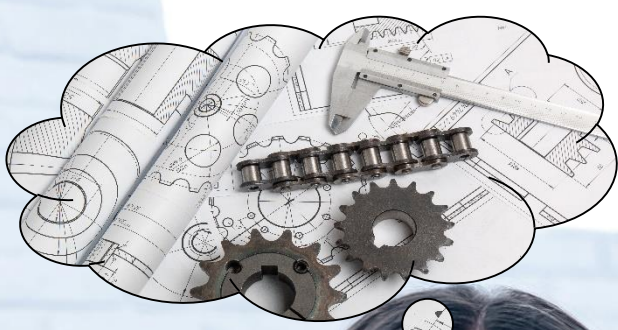UNIVERSITÄT PADERBORN

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Preliminary Work

How to design a cyber-physical system?
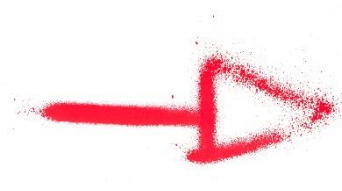
Different stakeholder – Different approaches

Analysis of existing approaches – Research gap
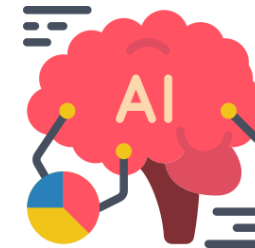
Vision
Advanced Digital Engineering

How can creativity and communication be supported by the use new technologies?

How can the user be supported by the automated deduction of further relevant models by an artificial intelligence?

How can unstructured knowledge about threats and vulnerabilities from news, blogs, etc. be integrated automatically?

Source: Occulus VR

Source: Microsoft

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Hacker

1 manipulate Batmobil

Batmobile: https://sketchfab.com/sam146
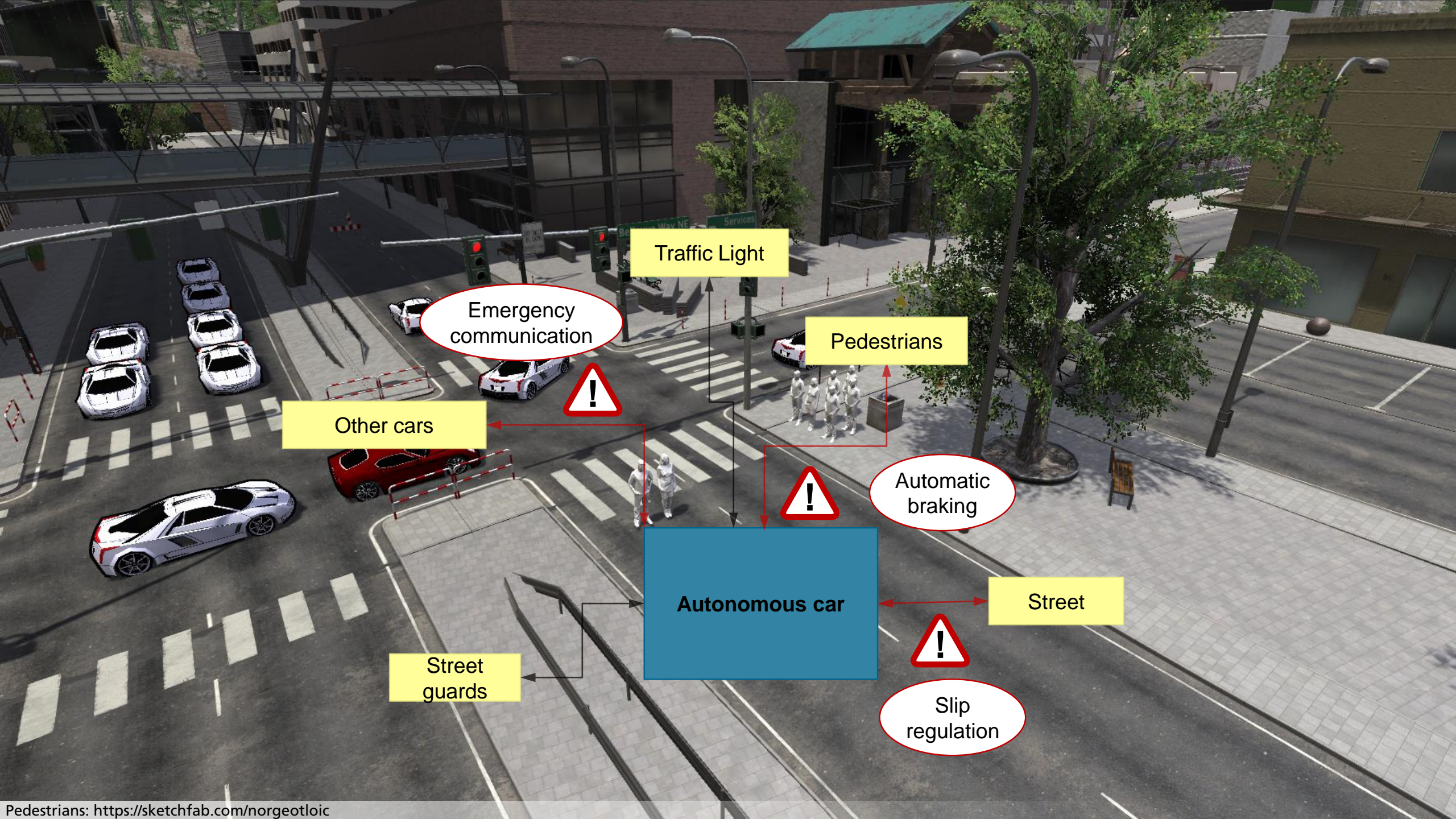
Traffic Light

Emergency communication

Pedestrians

Other cars

Automatic braking

Autonomous car

Street

Street guards

Slip regulation

Pedestrians: https://sketchfab.com/norgeotloic

Project Group B.A.T.M.A.N.
Goals

Virtual Reality - Improvement of the engineering experience through virtual reality

Networking - Enabling collaborative engineering with simultaneous use of multiple devices

Artificial Intelligence - Improvement of engineering efficiency through the usage of AI

Augmented Reality/3D Printing - Improvement of the engineering experience through physical 3D models

Level Design - Design of different scenarios related to autonomous driving

Source: Microsoft

Source: Occulus VR

Source: Microsoft