

Technology for Autism Care



Dr Arun Khosla
Professor

Department of Electronics and Communication Engineering
Head, Centre for Artificial Intelligence

Founder, Kayrio

Dr B R Ambedkar National Institute of Technology
Jalandhar – 144008. Punjab

What is Autism Spectrum Disorder

Neurological Disorder

Common Symptoms

- Difficulty with Communication
- Poor Social Interaction
- Repetitive Behaviour

The range and severity of symptoms can vary widely that's why called Spectrum Disorder



Source:

<https://www.speechandot.com/signs-and-symptoms-of-autism-spectrum-disorder-in-toddlers/>

Autism Prevalence

**Autism affects all ethnic and socioeconomic groups
More common in Boys than Girls**

Autism Prevalence

- **1 in 48, US**
- **1 in 100, India**
- **1 in 66, Canada**

and this prevalence is increasing

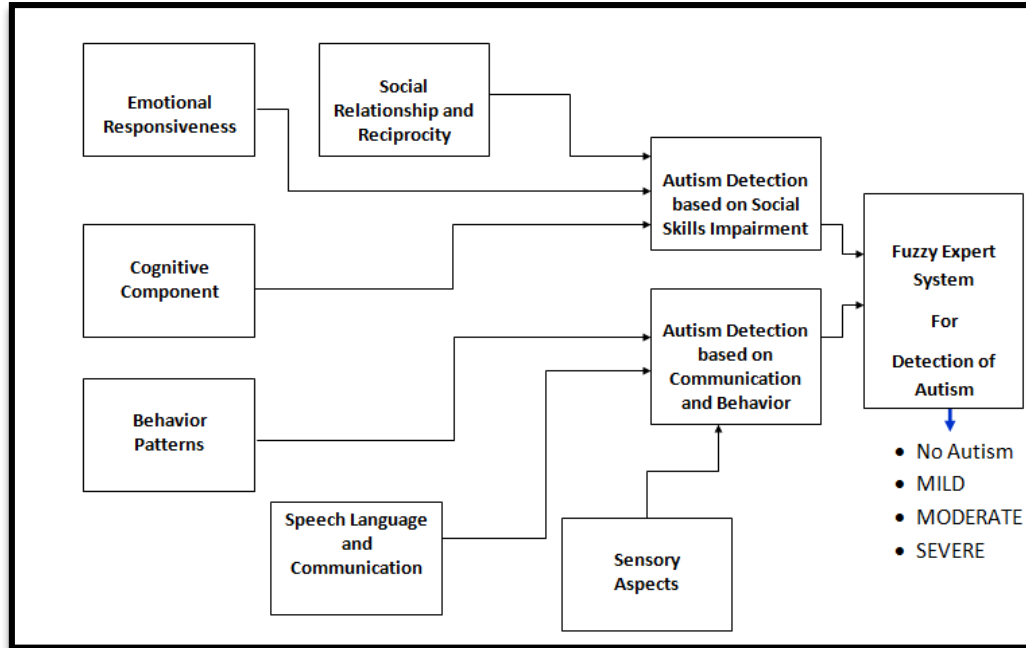
Economic Burden of Autism

Estimated Economic Burden in US

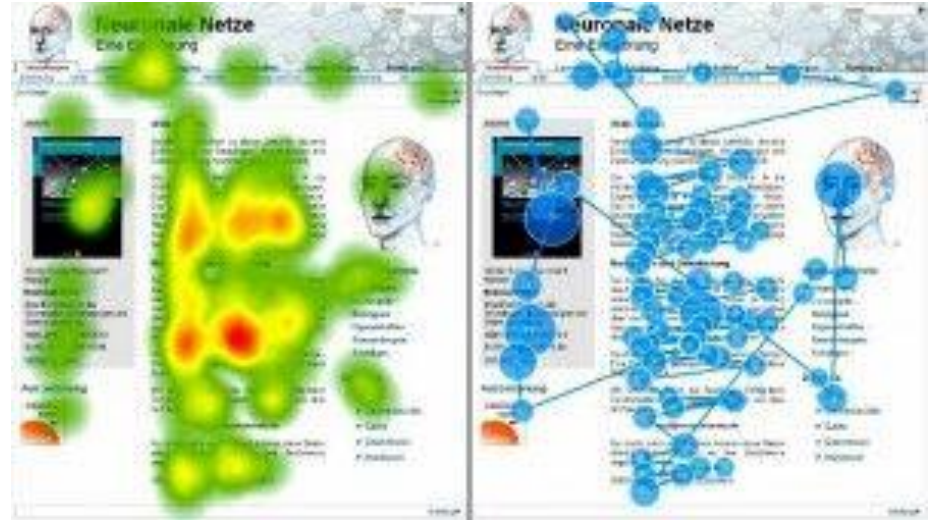
- **\$268 billion for 2015**
- **\$461 billion for 2025**
- **Mean Annual Costs per Children - \$60,000**

Bulk of the cost for special services and lost wages related to increased demands on one or both parents

Screening and Diagnosis



Automated Analysis of Gaze Patterns



Improvement of Cognitive, Motor and Sensory Skills of Autistic Children Using Microsoft Kinect



Multimodal Information Fusion Framework for Behavioral Recognition of Individuals with Autism in Unconstrained Environments

Design and Development of Low-Cost Smart Watch for Individuals with Autism

Development and Evaluation of Virtual Reality Interventions for Improving Cognitive and Vocational Skills in individuals with Autism Spectrum Disorder

Vision

To develop evidence-based innovative, creative and affordable technological solutions for autism care

Mission

To augment, enhance and extend the reach of existing autism services through technology

Thanks