Advance Machine learning on optical communication

Theme on Machine Learning

Dipankar Das

Computer Science and Engineering (CSE)
KIIT University

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Title

- This template can be used to approximate final page count for submission to Optica Publishing Groups journals *Applied Optics*

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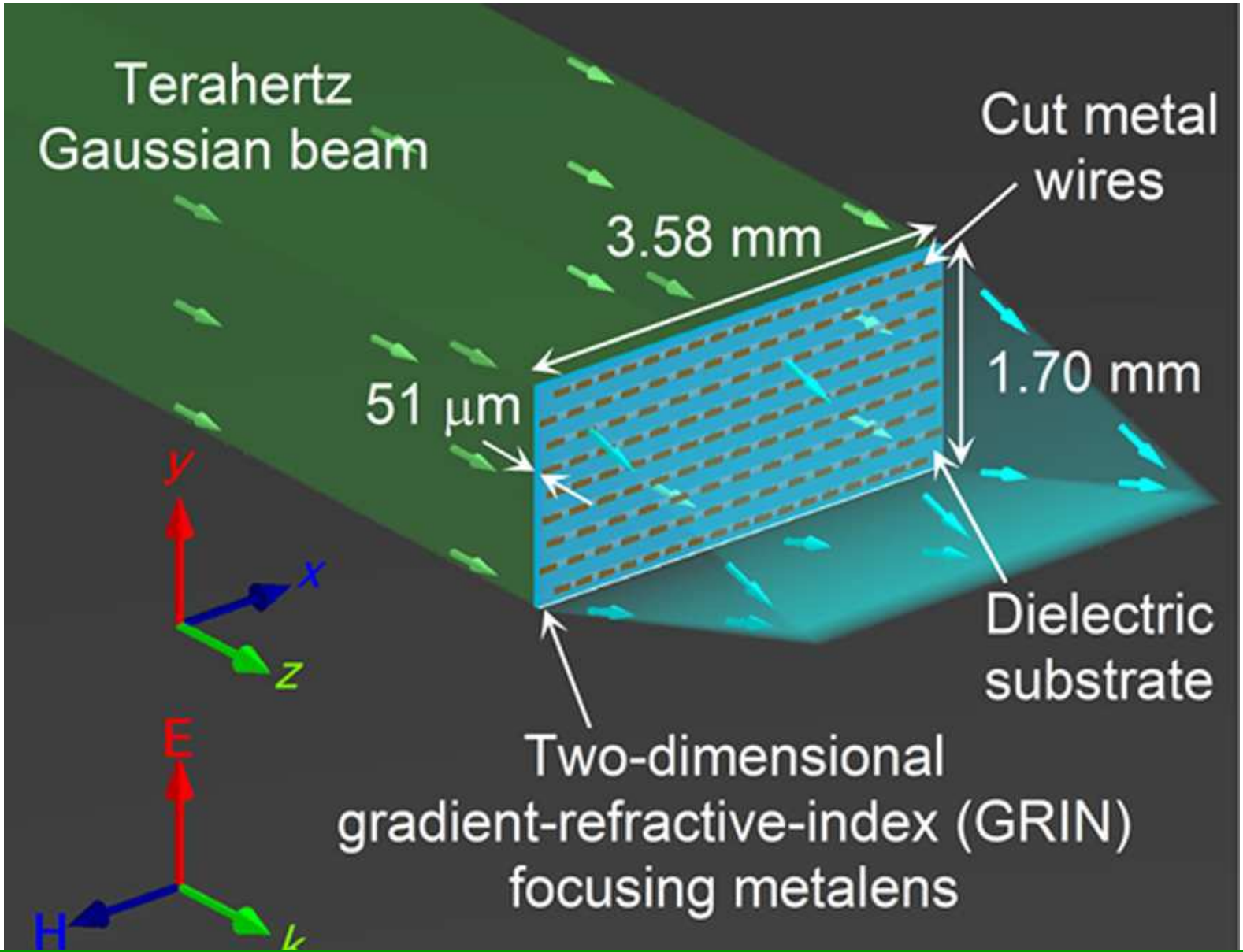
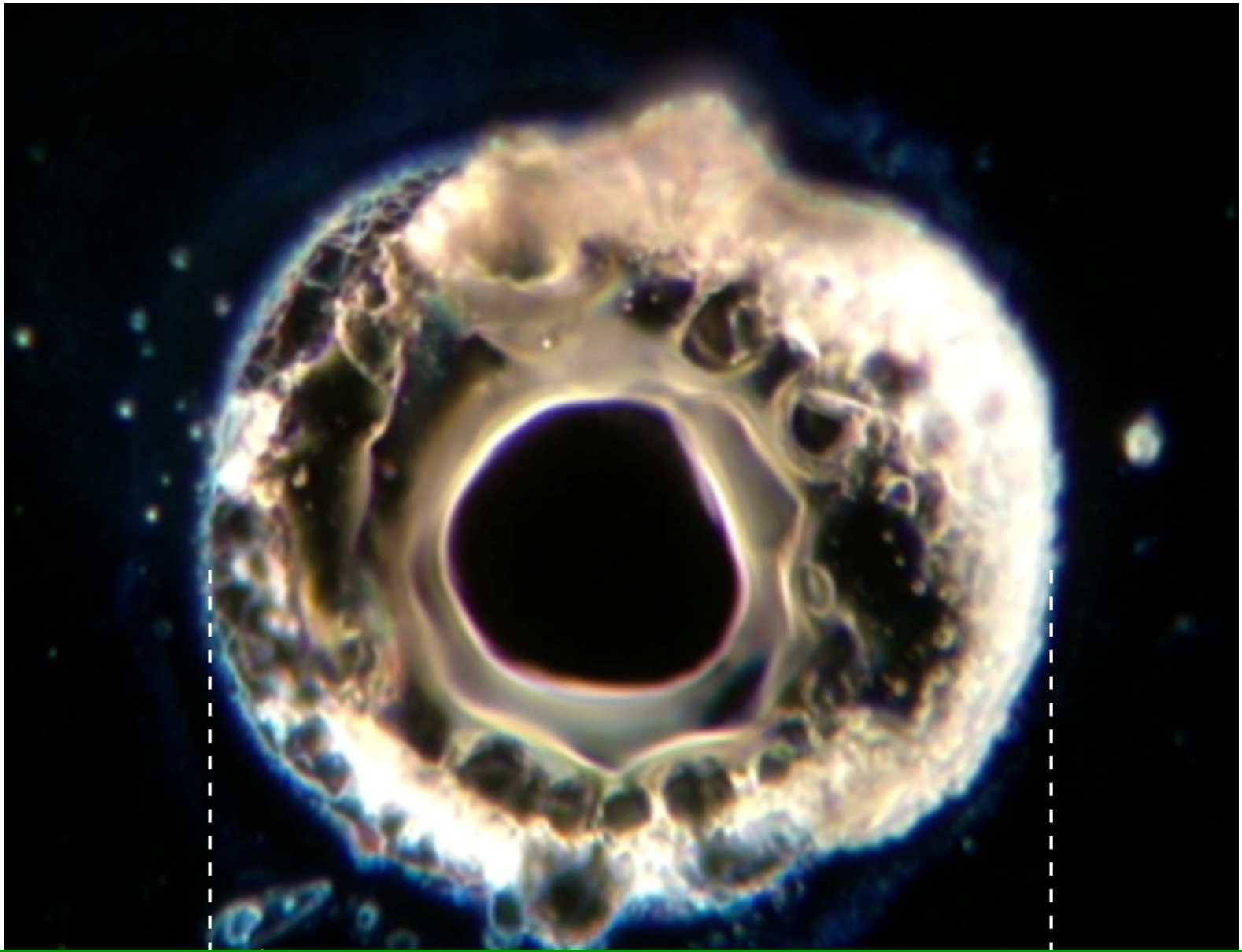
- In recent years, the use of machine learning techniques in various fields has revolutionized the way we approach complex problems. One area that has seen significant growth is the fitness industry, where personalized fitness apps using machine learning are becoming increasingly popular.


Terahertz
Gaussian beam
Cut metal
wires
3.58 mm
1.70 mm
51 μm
y
x
z
E
H
k
Dielectric
substrate
Two-dimensional
gradient-refractive-index (GRIN)
focusing metalens



Title

- Nulla malesuada porttitor diam. Donec felis erat, congue non, volutpat at, tincidunt tristique, libero. Vivamus viverra fermentum felis. Donec nonummy pellentesque ante.

Microsoft® Windows	Apple® Mac OS
Windows-Kernel	Unix-like
Arm, Intel	Intel, Apple Silicon
Sudden update	Stable update
Less security	More security
...	...

Algorithms

Non-Numbering Formula

$$J(\theta) = \mathbb{E}_{\pi_\theta}[G_t] = \sum_{s \in \mathcal{S}} d^\pi(s) V^\pi(s) = \sum_{s \in \mathcal{S}} d^\pi(s) \sum_{a \in \mathcal{A}} \pi_\theta(a|s) Q^\pi(s,a)$$

Multi-Row Formula[1]

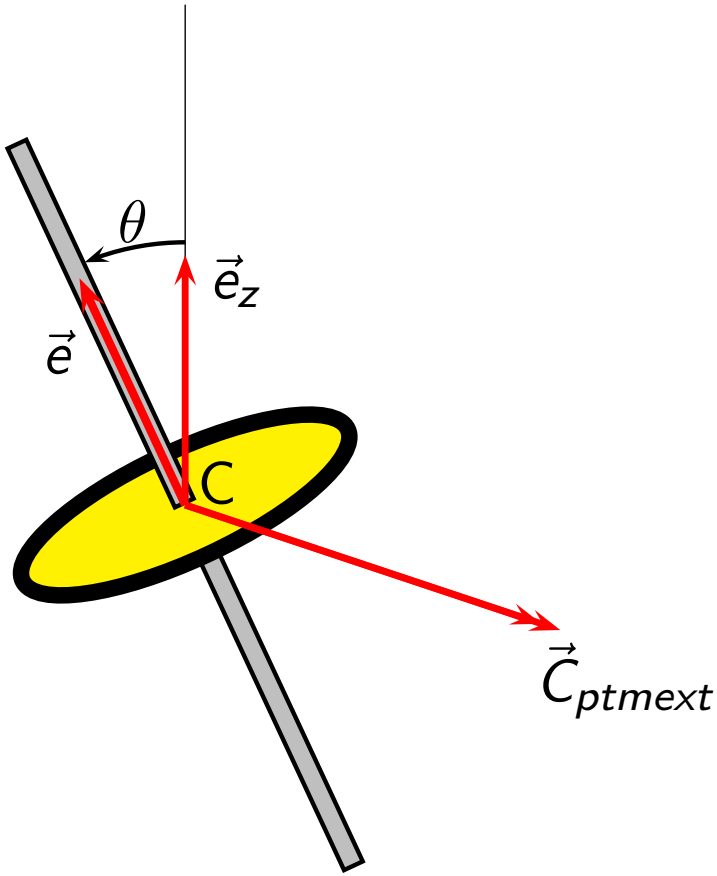
$$Q_{\text{target}} = r + \gamma Q^\pi(s', \pi_\theta(s') + \epsilon) \tag{1}$$
$$\epsilon \sim \text{clip}(\mathcal{N}(0, \sigma), -c, c)$$

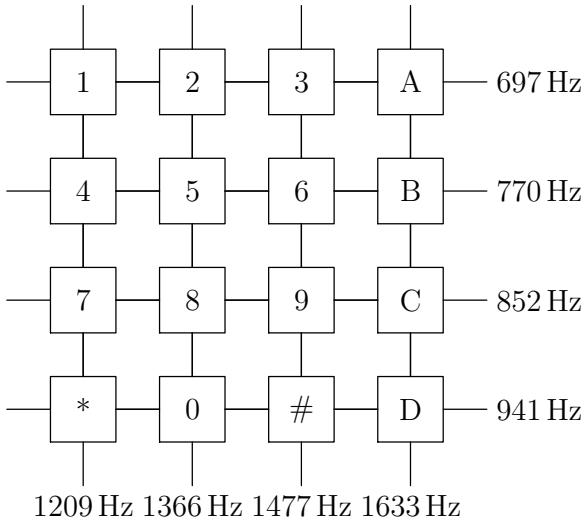
[1] If text appears in the formulause \mathrm{} or \text{} instead

Numbered Multi-line Formula

$$
\begin{aligned}
A = \lim_{n\to\infty} \Delta x \Big(a^2 + \Big(a^2 + 2a\Delta x + (\Delta x)^2\Big) \\
+ \Big(a^2 + 2\cdot 2a\Delta x + 2^2(\Delta x)^2\Big) \\
+ \Big(a^2 + 2\cdot 3a\Delta x + 3^2(\Delta x)^2\Big) \\
+ \ldots \\
+ \Big(a^2 + 2\cdot (n-1)a\Delta x + (n-1)^2(\Delta x)^2\Big)\Big) \\
= \frac{1}{3}\left(b^3 - a^3\right) \quad (2)
\end{aligned}
$$

Graphics and Columns





LaTeX Common Commands

Commands

\chapter	\section	\subsection	\paragraph
chapter	section	sub-section	paragraph
\centering	**\emph**	**\verb**	**\url**
center	emphasize	original	hyperlink
\footnote	**\item**	**\caption**	**\includegraphics**
footnote	list item	caption	insert image
\label	**\cite**	**\ref**	
label	citation	refer	

Environment

table	figure	equation
table	figure	formula
itemize	**enumerate**	**description**
non-numbering item	numbering item	description

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[1] M. Xu, "Ritsumeikan beamer theme," in *How to write beautiful LaTeX*, 2022.

Thank You