KALASALINGAM
ACADEMY OF RESEARCH AND EDUCATION
(DEEMED TO BE UNIVERSITY)
Under sec. 3 of UGC Act 1956. Accredited by NAAC with "A" Grade

Anand Nagar, Krishnankoil - 626126, Srivilliputtur (via), Virudhunagar District, Tamilnadu.

APPLICATION FOR ADMISSION TO Ph.D. PROGRAMMES

Date of Application:18-09-2025

Department	COMPUTER APPLICATIONS	Application No.	2025010431
Area of Research	AI & ML	Research Mode	FULL TIME

Name :GAYATHIRIDEVI M

Date of Birth / Age :28-11-1984 / 40 Years

Gender :FEMALE

Category :BC

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Father's/Husband's Name	MANI	Father's/Husband's Occupation	FARMER
Family Income	10,00,000	Residental Type	RURAL
Birth Place	ERODE	Mother Tongue	TAMIL
Religion	HINDU	Martial Status	MARRIED
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Physically Challenged	NO	Type of Disability	-

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Qualification

Degree	Discipline	College/university	Year Passed	AVG/CGPA	Class	Mode
MCA	COMPUTER APPLICATIONS	KONGU ENGINEERING COLLEGE / ANNA UNIVERSITY	2008	86	I	REGULAR
BSC	COMPUTER TECHNOLOGY	KONGU ENGINEERING COLLEGE / ANNA UNIVERSITY	2005	74	I	REGULAR

Experience

Organization	Designation	Experience From	Experience TO	Work Nature
COGNIZANT TECHNOLOGY SOLUTIONS	SENIOR ASSOCIATE	2009-02-09	2025-09-17	TECH LEAD

Payment Details

Transaction ID	Reference	Date of transaction	Amount	Status
2025010431_250918085213	BHD1H440WKPLK2	18-09-2025	600	SUCCESS

Research Scholar Name: Gayathiri Devi Mani   **Email Id:** gayathiridevi84@gmail.com

Title : Human–AI Collaboration in Education: Enhancing Pedagogy through Large Language Models

1. Introduction & Background

The emergence of Large Language Models (LLMs) such as GPT-4/5 has transformed how people access, produce, and reason with information. In education, they offer unprecedented opportunities: adaptive tutoring, feedback generation, co-writing, and automated assessment. Yet their impact on pedagogy, teacher agency, and student learning remains under-explored. Early studies show promise for personalized feedback and metacognitive scaffolding, but also raise concerns about bias, over-reliance, and equity.

This research proposes to investigate **human–AI collaboration in teaching and learning**, focusing on how LLM-enabled tools can enhance pedagogy while maintaining human creativity, critical thinking, and ethical responsibility.

2. Research Aims & Questions

Aim: Develop and evaluate pedagogical frameworks and interaction designs that leverage LLMs to support meaningful human–AI collaboration in education.

Key Questions:

1. How can LLMs be integrated into instructional workflows to scaffold learning rather than replace reasoning?

2. What interaction designs (prompting, co-editing, reflective questioning) best support teacher agency and student metacognition?

3. What are the effects of LLM-assisted pedagogy on learning outcomes, motivation, and equity across diverse learners?

4. How can ethical principles—fairness, transparency, privacy—be operationalized in AI-supported classrooms?

3. Literature & Gap

Current research in learning analytics and AI-supported instruction has examined automated feedback, question generation, and dialogue systems. However:

- Most studies treat AI as an *autonomous tutor*, not a collaborative partner.

- Little is known about **prompt literacy** and how teachers/students co-construct knowledge with LLMs.

- Empirical work rarely integrates **learning sciences** theories (constructivism, self-regulated learning) with **LLM affordances**.

- Ethical and cultural dimensions of LLM use in classrooms remain nascent.

This project addresses these gaps by uniting LLM engineering, pedagogy, and human-computer interaction.

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4. Methodology

Design: Mixed-methods, design-based research over three phases.

1. **Exploration & Co-Design**

   o Conduct interviews and participatory workshops with teachers and students to map needs and concerns.

   o Synthesize findings into design principles for LLM-enabled learning activities.

2. **Prototype Development & Pilot**

   o Build or adapt LLM-powered tools (e.g., guided writing coach, reasoning assistant) using prompt engineering or lightweight fine-tuning.

   o Pilot in small classes; collect interaction logs, learning artefacts, and user reflections.

3. **Evaluation & Theory Building**

   o Large-scale field experiments comparing traditional instruction, AI-only support, and human–AI collaboration.

   o Quantitative metrics: learning gains, engagement, equity of outcomes.

   o Qualitative data: interviews, think-aloud protocols, classroom observations.

   o Derive a **Pedagogical Human–AI Collaboration Framework**.

Ethics: Obtain IRB approval, ensure data privacy, address bias in training data, promote informed consent and explainability.

5. Expected Contributions

- **Theoretical:** Model of human–AI collaborative pedagogy grounded in learning sciences and HCI.

- **Practical:** Design guidelines and open-source prototypes for responsible use of LLMs in teaching.

- **Methodological:** Instruments for measuring agency, metacognition, and collaboration quality in AI-augmented classrooms.

- **Societal:** Evidence-based recommendations for policy and teacher professional development.

6. Resources & Supervision

The research will benefit from an interdisciplinary supervisory team (learning sciences, NLP, HCI), access to LLM APIs or open-weight models, cloud compute, and partnerships with local schools/universities for field trials.

7. Conclusion

As education enters an era of ubiquitous generative AI, understanding and shaping **human–AI collaboration** is essential. This PhD will provide robust evidence and practical strategies for integrating LLMs into pedagogy in ways that enrich teaching, foster deep learning, and uphold ethical values.

Anna University Chennai

ANNA UNIVERSITY
PROGRESS THROUGH KNOWLEDGE

Reg No.71105621008/RG

The Syndicate of the Anna University Chennai hereby makes known that **GAYATHIRI DEVI M** has been admitted to the **DEGREE OF MASTER OF COMPUTER APPLICATIONS** under the *Faculty of Information and Communication Engineering*, having completed the prescribed programme of study and having been certified by the duly appointed examiners to be qualified to receive the same, and has been placed in **FIRST CLASS WITH DISTINCTION** at the Examination held in **JUNE 2008**.
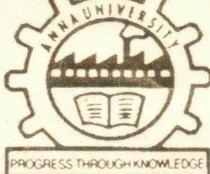
Given under the Seal of the University

Chennai 600 025
India
December 2008   *Controller of Examinations*   *Registrar*   *Vice-Chancellor*

ANNA UNIVERSITY
CHENNAI
M.C.A. DEGREE EXAMINATIONS

CONSOLIDATED STATEMENT OF MARKS

Folio No. F424439

G080571332M

NAME OF THE CANDIDATE	GAYATHIRI DEVI M		REGISTER NO.	71105621008
COLLEGE OF STUDY	711: Kongu Engineering College		MONTH & YEAR OF LAST APPEARANCE	June 2008
PROGRAMME & SPECIALIZATION	M.C.A.		REGULATIONS	2005

SEM.	SUBJECT CODE	SUBJECT TITLE	MAX	MIN	MARKS SECURED	MONTH & YEAR OF PASSING
01	MC1601	Computer Organization	100	50	078	NOV 2005
01	MC1602	Problem Solving and Programming	100	50	075	NOV 2005
01	MC1603	Business Processes	100	50	082	NOV 2005
01	MC1604	Data Structures	100	50	068	NOV 2005
01	MC1605	Accounting and Financial Management	100	50	066	NOV 2005
01	MC1606	Data Structures Lab	100	50	098	NOV 2005
01	MC1607	Programming Lab	100	50	096	NOV 2005
02	MC1651	Mathematical Foundations of Computer Science	100	50	084	JUN 2006
02	MC1652	Object Oriented Programming	100	50	087	JUN 2006
02	MC1653	Design and Analysis of Algorithms	100	50	070	JUN 2006
02	MC1654	Database Management Systems	100	50	079	JUN 2006
02	MC1655	Operating Systems	100	50	070	JUN 2006
02	MC1656	Object Oriented Programming Lab	100	50	099	JUN 2006
02	MC1657	DBMS Lab	100	50	100	JUN 2006
02	MC1658	Alogorithms Lab	100	50	098	JUN 2006
03	MC1701	Computer Networks	100	50	074	NOV 2006
03	MC1702	Microprocessors and its Applications	100	50	072	NOV 2006
03	MC1703	Software Engineering	100	50	069	NOV 2006
03	MC1704	Computer Graphics and Multimedia Systems	100	50	079	NOV 2006
03	MC1705	Internet Programming	100	50	094	NOV 2006
03	MC1706	Graphics and Multimedia Lab	100	50	098	NOV 2006
03	MC1707	Microprocessor Lab	100	50	093	NOV 2006
03	MC1708	Internet Programming Lab	100	50	100	NOV 2006
04	MC1751	UNIX and Network Programming	100	50	078	JUN 2007
04	MC1752	Resource Management Techniques	100	50	094	JUN 2007
04	MC1753	Object Oriented Analysis and Design	100	50	073	JUN 2007
04	MC1754	Middle-Ware Technologies	100	50	083	JUN 2007
04	MC1624	Web Graphics	100	50	077	JUN 2007
04	MC1755	Visual Programming Lab	100	50	100	JUN 2007
04	MC1756	Unix and Network Programming Lab	100	50	100	JUN 2007
04	MC1757	Middleware Lab	100	50	099	JUN 2007
05	MC1801	XML and Web Services	100	50	073	NOV 2007
05	MC1802	Software Project Management	100	50	070	NOV 2007
05	MC1626	Advanced Databases	100	50	081	NOV 2007
05	MC1630	Data Warehousing and Data Mining	100	50	081	NOV 2007
05	MC1642	Unix Internals	100	50	074	NOV 2007
05	MC1803	XML and Web Services Lab	100	50	100	NOV 2007
05	MC1804	Software Development Lab	100	50	100	NOV 2007
06	MC1851	Project Work	400	200	383	JUN 2008

End of Statement

Classification : FIRST CLASS WITH DISTINCTION

Total Marks : 3595 / 4200

Percentage (rounded to nearest integer) : 86

Medium of Instruction : ENGLISH

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KONGU ENGINEERING COLLEGE

PERUNDURAI, ERODE - 638 052.TAMILNADU, INDIA.

(Approved by AICTE, New Delhi and Affiliated to Anna University, Chennai)

ESTD : 1984
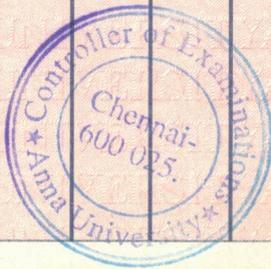
TRANSFER CERTIFICATE

S.No. 1037

Admission No.   85/2005-2006

1.	Name of the Student	:	GAYATHIRI DEVI .M
2.	Sex	:	FEMALE
3.	Nationality,religion, caste	:	INDIAN, HINDU, KONGU VELLALAR
4.	Name of the Father/Guardian of the student	:	T.A.MANI
5.	Date of birth as entered in the admission register	:	28/11/1984
6.	Branch/Semester in which the student was studying at the time of leaving	:	VI,MASTER OF COMPUTER APPLICATIONS
7.	Date of admission to that class (the year to be entered in words)	:	10/08/2005
8.	Whether qualified for promotion to a higher class	:	Refer to Mark Sheets
9.	Last date on which the student attended the college	:	01/07/2008
10.	Date on Which application for Transfer Certificate was made	:	01/07/2008
11.	Conduct & Character	:	EXEMPLARY/GOOD/~~SATISFACTORY~~
12.	Special Remarks	:	-NIL-

PLACE : PERUNDURAI

DATE :   01/07/2008

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आयकर विभाग
INCOME TAX DEPARTMENT

भारत सरकार
GOVT. OF INDIA

M GAYATHIRIDEVI

MANI

28/11/1984
Permanent Account Number
APAPG3299J

Signature