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:09-09-2024

Department	MATHEMATICS	Application No.	20240020
Area of Research	STATISTICS, DATA SCIENCE, DATA ANALYTICS	Research Mode	PART TIME

Name :VELU CHINNASAMY SHANMUGAM

Date of Birth / Age :30-07-1980 / 44 Years

Gender :MALE

Category :MBC

e-Mail ID :velushamu@gmail.com

Mobile :+17206952996

Father's/Husband's Name	SHANMUGAM	**Father's/Husband's Occupation**	–
Family Income	0	**Residental Type**	RURAL
Birth Place	CHELLATHUR VILLAGE, R K PET	**Mother Tongue**	TAMIL
Religion	HINDU	**Martial Status**	MARRIED
Aadhaar No.	-	**PAN No.**	-
Physically Challenged	NO	**Type of Disability**	-NA-

Address for Communication:
2901 GENEVIVE LANE
-
PROSPER
- DISTRICT
TEXAS
UNITED STATES
Pin-75078

Permenant Address:
1/43
CHELLATHUR VILLAGE R K PET POST
R K PET TALUK
TIRUVELLORE DIST DISTRICT
TAMIL NADU
INDIA
Pin-631303

Qualification

Degree	Discipline	College/university	Year Passed	AVG/CGPA	Class	Mode
BACHELOR OF SCIENCE	COMPUTER SCIENCE	UNIVERSITY OF MADRAS	2002	-	1ST CLASS	REGULAR
MASTER OF SCIENCE	STATISTICS WITH COMPUTER APPLICATIONS	BHARATHIAR UNIVERSITY	2004	-	1ST CLASS	REGULAR
MASTER OF PHILOSOPHY	STATISTICS	ANNAMALAI UNIVERSITY	2010	-	2ND CLASS	REGULAR
-NA-	-NA-	-NA-	-NA-	-NA-	-NA-	REGULAR

Experience

Organization	Designation	Experience From	Experience TO	Work Nature

DIRECTV	PRINCIPAL, MARKETING ADVANCED ANALYTICS	2022-04-25	1970-01-01	ML PROPENSITY MODELS, PROPENSITY TO MIGRATE, PROPENSITY TO RECONNECTS, PROPENSITY TO CONTACT, PROPENSITY TO UPGRADE, CAMPAIGN PERFORMANCE AND CHURN BENEFITS ANALYSIS, CHURN ATTRIBUTION/ANALYTICS, APP ADOPTION ANALYSIS, CUSTOMER CHURN INSIGHTS, DIRECTV HEADLINES INSIGHTS
CHAMBERLAIN GROUP	SENIOR APPLIED DATA SCIENTIST	2019-07-08	2022-04-22	MARKETING ANALYTICS, PROFILE ANALYSIS, PROPENSITY MODEL TO PURCHASE PRODUCTS/CONNECT DEVICES, SALES FORECASTING AT THE PRODUCT CATEGORY LEVEL, PRICE OPTIMIZATION, MARKETING CAMPAIGN ANALYSIS, CUSTOMER EXPERIENCE ANALYTICS, CUSTOMER SURVEY ANALYSIS, CUSTOMER CHURN PREDICTIVE ANALYSIS
SEARS HOLDINGS CORPORATION	SENIOR DATA SCIENTIST	2017-09-05	2018-06-10	CREDIT CARD SPENDING ANALYSIS, CUSTOMER ENGAGEMENT ANALYSIS, FORECASTING BY SALES
WIPRO TECHNOLOGY/DISH NETWORK	LEAD DATA SCIENTIST	2008-03-26	2017-09-29	CUSTOMER CHURN MODEL (BOTH DISH/SLING TV), PROPENSITY TO PAY COLLECTIONS, ISSUING SMARTER CALL TAGS, SHS PROPENSITY TO BUY CROSS-SELL PRODUCTS & PRODUCT RECOMMENDATIONS, TEXT MINING, SLINGTV SUBSCRIPTION LEVEL PROJECTIONS, AND CUSTOMER SEGMENTATION

Payment Details

Transaction ID	Reference	Date of transaction	Amount	Status
20240020_240911091246	ZHMP8IY00WIR0P	11-09-2024	600	SUCCESS

Title

Developing a Churn Propensity Model Using Advanced Machine Learning Techniques

Abstract

This research aims to develop a robust churn propensity model using advanced machine learning techniques. The study will focus on identifying key factors that influence customer churn and creating predictive models to help businesses proactively manage customer retention. The research will leverage large datasets and state-of-the-art algorithms to achieve high predictive accuracy and actionable insights.

Introduction

- **Background**: Customer churn is a critical issue for businesses, leading to significant revenue loss. Understanding and predicting churn can help companies implement effective retention strategies.
- **Problem Statement**: Despite numerous studies, accurately predicting customer churn remains challenging due to the complexity and variability of customer behavior.
- **Objectives**: The primary objectives are to develop a predictive model for churn propensity, identify the most significant predictors of churn, and propose strategies for reducing churn rates.

Literature Review

- Existing Research: Review of previous studies on churn prediction, highlighting the methodologies and algorithms used.
- **Gaps in Knowledge**: Identification of gaps in current research, such as the need for more accurate models and better understanding of churn predictors.

Methodology

- **Data Collection**: Collection of large datasets from various industries, including customer demographics, transaction history, and interaction data.
- **Data Preprocessing**: Cleaning and preprocessing data to handle missing values, outliers, and normalization.
- Model Development: Use of machine learning algorithms such as logistic regression, decision trees, random forests, and neural networks to develop the churn propensity model.
- **Evaluation Metrics**: Evaluation of model performance using metrics like accuracy, precision, recall, F1 score, and ROC-AUC.

Expected Results

- **Predictive Accuracy**: High accuracy in predicting customer churn, with detailed analysis of model performance.
- **Key Factors**: Identification of the most significant factors contributing to customer churn.
- **Retention Strategies**: Development of actionable strategies for reducing churn based on model insights.

Conclusion

- **Summary**: Recap of the research objectives, methodology, and expected outcomes.
- **Implications**: Discussion of the potential impact on businesses and customer retention strategies.
- **Future Work**: Suggestions for further research, including the exploration of new algorithms and datasets.

Title

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This research aims to develop a robust churn propensity model using advanced machine learning techniques. The study will focus on identifying key factors that influence customer churn and creating predictive models to help businesses proactively manage customer retention. The research will leverage large datasets and state-of-the-art algorithms to achieve high predictive accuracy and actionable insights.

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- **Summary**: Recap of the research objectives, methodology, and expected outcomes.
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- **Future Work**: Suggestions for further research, including the exploration of new algorithms and datasets.

2001 / 0006707

சென்னைப் பல்கலைக்கழகம்

UNIVERSITY OF MADRAS

B. SC DEGREE NON-SEMESTER EXAMINATION

Sr. No: 6616

CONSOLIDATED STATEMENT OF MARKS

NAME OF CANDIDATE	SEX	REGISTER NO./ ENROLMENT NO.	CENTRE NO. AND NAME	BRANCH NAME
VELU C S [31/07/80]	M	2905229	[04251] ADHIPARASAKTHI COLLEGE OF SCIENCE. KALAVAI.	[RS] COMPUTER SCIENCE

COURSE CODE	NAME OF SUBJECT	SUBJECT CODE	MARKS SECURED	MAX MARKS	MONTH & YEAR
	FOUNDATION COURSE – LANGUAGE				
FC	TAMIL PAPER I	GAC	063	100	APR00
FC	TAMIL PAPER – II	GAF	044	100	APR01
	TOTAL / MAX MARKS:		0107/	0200	
	PERCENTAGE & CLASS: 53.50 % SECOND				
	FOUNDATION COURSE – ENGLISH				
FC	ENGLISH – PAPER I	GZC	040	100	OCT00
FC	ENGLISH – PAPER II	GZD	040	100	APR01
	TOTAL / MAX MARKS:		0080/	0200	
	PERCENTAGE & CLASS: 40.00 % THIRD				
	CORE COURSES – ALLIED				
CA	PRACTICAL – STATISITICAL METHODS AND THEIR APPLICATION	JJ1	050	050	APR01
CA	STATISITICAL METHODS AND THEIR APPLICATION	JJA	042	100	OCT01
CA	MATHEMATICS	KAB	045	100	APR00

COURSE CODE	NAME OF SUBJECT	SUBJECT CODE	MARKS SECURED	MAX MARKS	MONTH & YEAR
	CORE COURSES – MAIN				
CM	PRACTICAL I	RS1	038	040	APR00
CM	PRACTICAL II	RS2	036	040	APR00
CM	PRACTICAL III	RS3	031	040	APR01
CM	PRACTICAL IV DIGITAL ELECTRONIC AND MICROPROCESSOR LAB	RS4	098	100	APR02
CM	PRACTICAL V	RS5	030	040	APR02
CM	PAPER I FORTRAN AND SCIENTIFIC COMPUTATIONAL METHODS	RSA	024	060	APR00
CM	PAPER II FILE STRUCTURE AND PROGRAMMING IN COBOL	RSB	028	060	APR00
CM	PAPER III FUNDAMENTALS OF COMPUTING	RSC	060	100	APR01
CM	PAPER IV PASCAL AND DATA STRUCTURE	RSD	028	060	APR01
CM	PAPER V MICROPROCESSOR AND DIGITAL COMPUTER FUNDAMENTALS	RSE	047	100	APR02
CM	PAPER VII PROGRAMMING IN "C" AND SYSTEM SOFTWARE	RSF	042	060	APR02
CM	PAPER VIII DISCRETE MATHEMATICS	RSG	053	100	APR02
CM	PAPER IX DESIGN AND ANALYSIS OF ALGORITHMS	RSH	077	100	APR02
CM	PAPER X COMPUTER SYSTEM ARCHITECTURE	RSL	057	100	APR02
	TOTAL / MAX MARKS:		0786/	1250	
	PERCENTAGE & CLASS: 62.88 % *** FIRST ***				
	******* END OF STATEMENT *******				

CONTROLLER OF EXAMINATIONS (E. 2/B. SC SECTION) UNIVERSITY OF MADRAS CHENNAI-5

COURSE CODE : FC - FOUNDATION COURSE
CA - CORE COURSE ALLIED
CM - CORE COURSE MAIN
AO - APPLICATION ORIENTED COURSE

PASSING MINIMUM : 40% MARKS

FOUNDATION COURSES	TOTAL MARKS	CLASS	CORE COURSE	TOTAL MARKS	CLASS
TAMIL	0107	SECOND	COMPUTER SCIENCE	0786	FIRST
ENGLISH	0080	THIRD			

UNIVERSITY BUILDINGS,
CHENNAI - 600 005.

DATE OF ISSUE : 25 OCT 2002

S. Karunanidhi

PROF. S. KARUNANIDHI

FOLIO NO. 269

BHARATHIAR UNIVERSITY

COIMBATORE

POST GRADUATE DEGREE EXAMINATION
CHOICE BASED CREDIT SYSTEM (CBCS)
CONSOLIDATED STATEMENT OF MARKS AND GRADES

Name of the Candidate	Programme
VELU C S	M.SC.STATISTICS WITH COMP.APLN

Register No.	Department and Institution of Study	Month & Year of Last appearance
02STAB26	STATISTICS UNIVERSITY DEPARTMENT	APRIL 2004

SEM	COURSE CODE	COURSE TITLE	CREDIT		Max Marks	Marks Secured	Grade Point	Grade
			Theory	Practical				
1	02STABC01	PROBABILITY & DISTRIBUTION	4	0	100	64	4	B
1	02STABC02	STATISTICAL QUALITY CONTROL	4	0	100	69	5	A
1	02STABC03	SAMPLING THEORY & METHODS	4	0	100	64	4	B
1	01CSEGE20	PROBLEM SOLVING & PROGRAMMING IN C	2	2	100	75	6	D
1	01CSEGS26	WINDOWS & MS-WORD	1	1	50	34	5	A
2	02STABC04	MULTIVARIATE ANALYSIS	4	0	100	67	5	A
2	02STABC05	STATISTICAL INFERENCE	4	0	100	65	5	A
2	02STABC06	OBJECT ORIENTED PROGRAMMING C++	4	0	100	73	5	A
2	01CSEGE26	OBJECT ORIENTED PROGRAMMING	4	0	100	70	5	A
2	01CSEGS30	MS-ACCESS	2	0	50	35	5	A
3	02STABC07	LINEAR MODELS AND DESIGN OF EXPERIMENTS	4	0	100	66	5	A
3	02STABC08	OPERATIONS RESEARCH	4	0	100	77	6	D
3	02STABC09	ECONOMETRICS	4	0	100	75	6	D
3	01POPGE16	INTRODUCTION TO POPULATION STUDIES	4	0	100	51	3	C
3	01LINGS17	BASIC PHONETICS	2	0	50	34	5	A
4	02STABC10	TIME SERIES & STOCHASTIC PROCESS	4	0	100	72	5	A
4	02STABC11	VISUAL BASIC & COMPUTER GRAPHICS	4	0	100	65	5	A
4	02STABC12	PROJECT & VIVA-VOCE	0	10	250	210	6	D
		** END OF STATEMENT **						

Controller of Examinations Bharathiar University Coimbatore 641 046

CUMULATIVE GRADE POINT AVERAGE : 5.08 **CLASS :** FIRST CLASS

COIMBATORE - 641 046
DATE : 10 NOV 2004

CONTROLLER OF EXAMINATIONS

Annamalai University

STATEMENT OF MARKS [DISTANCE EDUCATION]

COURSE : M. PHIL [STATISTICS]
NAME : VELU C S

YEAR : MARCH - 2010
REG. NO.: 422M8075P00016

CODE	SUBJECT/S	MARKS AWARDED	PASSING MINIMUM	MAXIMUM MARKS	RESULT
150	VIVA VOCE	63	50	100	PASS
	--- End of Statement ---				

ANNAMALAI UNIVERSITY ANNAMALAINAGAR

Annamalai Nagar - 608 002

Annamalai University

(DISTANCE EDUCATION)

STATEMENT OF MARKS

COURSE : M. PHIL [STATISTICS]
NAME : VELU C S

YEAR : SEPTEMBER - 2009
REG. NO.: 422M8075P00016

CODE	SUBJECT/S	MARKS AWARDED	PASSING MINIMUM	MAXIMUM MARKS	RESULT
140	DISSERTATION	60	50	100	PASS
150	VIVA VOCE	AB	50	100	ABSENT

--- End of Statement ---

ANNAMALAI UNIVERSITY ANNAMALAINAGAR-608002

Annamalai Nagar - 608 002

Annamalai University

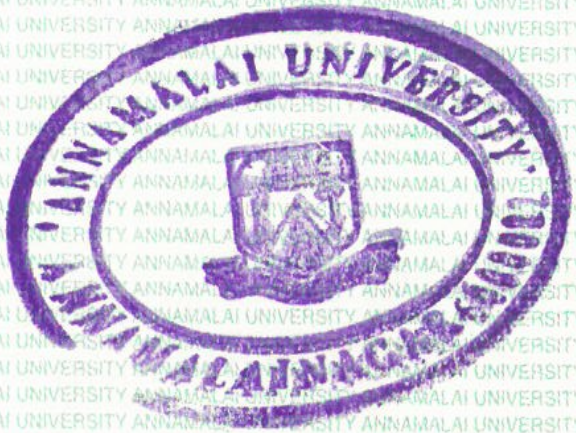
(DISTANCE EDUCATION)
STATEMENT OF MARKS

COURSE : M. PHIL [STATISTICS]
NAME : VELU C S

YEAR : MAY - 2008
REG. NO.: 422M8075P00016

CODE	SUBJECT/S	MARKS AWARDED	PASSING MINIMUM	MAXIMUM MARKS	RESULT
131	BIO STATISTICS AND SURVIVAL ANALYSIS	59	50	100	PASS

--- End of Statement ---



Annamalai University

(DISTANCE EDUCATION)

STATEMENT OF MARKS

COURSE : M. PHIL [STATISTICS]
NAME : VELU C S

YEAR : MAY - 2007
REG. NO.: 422M0737F00062

CODE	SUBJECT/S	MARKS AWARDED	PASSING MINIMUM	MAXIMUM MARKS	RESULT
110	RESEARCH METHODOLOGY	51	50	100	PASS
120	STATISTICAL INFERENCE	52	50	100	PASS
131	BIO STATISTICS AND SURVIVAL ANALYSIS	25	50	100	FAIL
	--- End of Statement ---				

Reg.No.:422M8075P00016

ANNAMALAI UNIVERSITY

WITH COURAGE AND FAITH

FACULTY OF SCIENCE

The Senate of the ANNAMALAI UNIVERSITY hereby makes known that **VELU C S** has been admitted to the Degree of **MASTER OF PHILOSOPHY IN STATISTICS** he/she having been certified by duly appointed Examiners to be qualified to receive the same at the Examination held in **MARCH - 2010** and that he/she was placed in **SECOND** Class.

Given under the seal of the University

Annamalainagar
Dated : 06/10/2010

Deputy Controller of Examinations (Academic)

Registrar

Vice-Chancellor

BHARATHIAR UNIVERSITY, COIMBATORE.

PROVISIONAL CERTIFICATE

Register No. : 02STAB26 Folio No.: 559

This is to certify that VELU C S

has qualified for the Degree of MASTER OF SCIENCE

he/she having passed the final examination held in APRIL 2004 as follows :

*** M.SC.STATISTICS WITH COMP.APLN FIRST CLASS

CONTROLLER OF EXAMINATIONS COIMBATORE 641046 BHARATHIAR UNIVERSITY

Coimbatore 641 046
Date 10 NOV 2004

Controller of Examinations

Reg.No: 02STAB26

பாரதியார் பல்கலைக் கழகம்
Bharathiar University

அறிவியல் புலம்
FACULTY OF SCIENCE

பாரதியார் பல்கலைக் கழகம் ஏப்ரல் 2004ஆம் ஆண்டு நடத்திய புள்ளியியலுடன் கணிப்பான் செயல்முறையியல் தேர்வில் வேலு சி ச, முதல் வகுப்பில் தேர்ச்சி பெற்றுத் தகுதியடைந்திருப்பதாக, உரிய தேர்வாளர்கள் சான்றளித்ததை ஏற்று, அறிவியல் நிறைஞர் என்னும் பட்டத்தினை அவருக்குப் பல்கலைக் கழக இலச்சினையுடன், பாரதியார் பல்கலைக் கழக ஆட்சிக் குழு வழங்குகின்றது.

The Syndicate of the Bharathiar University hereby makes known that **VELU C S** *has been admitted to the Degree of* **MASTER OF SCIENCE,** *having been certified by duly appointed Examiners to be qualified to receive the same in* **STATISTICS WITH COMPUTER APPLICATIONS** *and was placed in the* **FIRST** *Class, at the Examination conducted in* **APRIL 2004** *by Bharathiar University.*

Given under the Seal of the University.

கோயம்புத்தூர்
Coimbatore

நாள்
Dated: 1st March 2005

தேர்வாணையர்
Controller of Examinations

பதிவாளர்(பொ)
Registrar i/c

துணைவேந்தர்
Vice-Chancellor

t5030641

ISSUED ON 29 SEP 2005

C № 064400

2001/ 95055

சென்னைப் பல்கலைக்கழகம்

UNIVERSITY OF MADRAS

CENTRE CODE	REG. NO. / ENRL. NO.
0425	2905229

FOLIO NUMBER	DATED
JVKS04312	22/07/2002

PROVISIONAL CERTIFICATE B. SC

This is to certify that VELU C S

has qualified for the degree of BACHELOR OF SCIENCE

he/she having passed the above Degree Examination held

in APRIL-2002 *as follows :*

LANGUAGE : TAMIL	SECOND CLASS
ENGLISH :	THIRD CLASS
CORE COURSE: COMPUTER SCIENCE	FIRST CLASS

CHEPAUK, CHENNAI - 600 005.

ASSISTANT REGISTRAR

2905229

University of Madras
சென்னைப் பல்கலைக்கழகம்

FACULTY OF SCIENCE
அறிவியல் புலம்

The Senate of the University of Madras *hereby makes known that* **VELU C S** *has been admitted to the*

DEGREE OF BACHELOR OF SCIENCE IN COMPUTER SCIENCE

he / she having been certified by duly appointed Examiners to be qualified to receive the same and was placed in the **FIRST CLASS** *at the Examination held in* **APRIL 2002**

சென்னைப் பல்கலைக்கழகப் பேரவை, 2002 *ஆம் ஆண்டு* **ஏப்ரல்** *மாதம் நடந்த* **கணினி அறிவியல்** *தேர்வில்* **வேலு சி ச** *என்பவர்* **முதல் வகுப்பில்** *தேர்ச்சி பெற்றார் என்று தக்க தேர்வாளர்கள் சான்றளித்தபடி,* **அறிவியல் இளையர்** *என்னும் பட்டத்தை அவருக்குப் பல்கலைக்கழக இலச்சினையுடன் வழங்குகிறது.*

Given under the seal of the University

Registrar
பதிவாளர்

Vice-Chancellor
துணைவேந்தர்

Dated :
நாள் : **12-09-2002**

Chepauk, Chennai 600 005, Tamilnadu, India
சேப்பாக்கம், சென்னை - 600 005, தமிழ்நாடு, இந்தியா

2K-2/ 020688

Velu, CHINNASAMY SHANMUGAM

Principal, Marketing Advanced Analytics Email: **velushamu@gmail.com**
LinkedIn: www.linkedin.com/in/velushanmugam Mobile: **+1 (720)-695-2996**

SUMMARY:

- Overall 19+ years of experience in data science, machine learning, and advanced analytics. Focused on applying data-driven analytics to challenging business problems and proven ability to translate high-level objectives into practical analysis and deliver actionable recommendations. Record of managing complex projects and creating solutions that work. Self-directed innovator searching for challenges.
- Delivering AI ML-based solutions for various domains and problems such as Customer Segmentation & Targeting, Propensity Modelling, Churn Modelling, Lifetime Value Estimation, Forecasting, Recommender Systems, Modelling Response to Incentives, Marketing Mix Optimization, and Price Optimization
- Applying probability theory, statistics, simulation, and stochastic modeling methodologies to model uncertainty in operational systems and using mathematical models to make robust business decisions and test proposed solutions.
- Built propensity models using advanced machine learning algorithms and profile analysis using Internal myQ App and External Acxiom attributes to predict customers more likely to connect Amazon Key. Improved Key conversion rate by **2.1 to 2.7X** using social media and email campaigns. Also, it reduced Customer Acquisition Costs by half
- Built a Propensity model using machine learning algorithms to identify the customer who is more likely to Upgrade myQ Free Trial to Paid Video Subscriptions. It helped +106% higher conversion rate when compared to High vs. Low propensity groups, and targeting the right audience helps to increase the open and click rate from 17.2% to 34.8%
- Migrations ML model helped identify high propensity-scored DirecTV customers with a 55% higher migration rate than medium propensity and 174% **higher rate** than low propensity. Also, the treatment rates have increased by over 200 BPS post-launch for high-propensity, the high-propensity group has a higher treatment rate showing the offer acceptance for this group
- Developing multiple Machine Learning (ML) models (using Random Forest Regressor, Facebook Prophet, and Regression-based ARIMA) to predict future Voluntary Churn and Sales volumes and identify the most important Macro indices impacting the business, predicting accuracy of **95%** and above a crucial component of managing business targets
- Developed predictive models to identify the most significant behavioral patterns that lead to sling/dish customers churn and the model helped to retain customers by 26%
- Built response models to predict the probability of a customer returning the set-top boxes
- Developed time series forecasting models using Advanced machine learning algorithms(Prophet, LSTM) & provided strategic analysis for the business demands and supply, in which the model predicted actual demand with 93% accuracy
- Built Market Mix Model (MMM) to identify sales drivers in price, promotions, distributions, and media spending such as TV, Print, Radio, and online. Also, defined effectiveness (volume generated by each unit of effort), Return on investment, and optimal marketing spend to maximize sales and/or profit
- Proven leader with outstanding relationship-building skills and strong communication abilities

ADVANCED DEGREE:

Annamalai University	**Master of Philosophy(M.Phil)**	**Statistics**	India	2010
Bharathiar University	**Master of Science (M S)**	**Statistics with Computer Applications**	India	2004
University of Madras	**Bachelor of Science (B S)**	**Computer Science**	India	2002

TECHNICAL SKILLS:

Analytics: R, Python, PySpark, SparkR, R on Hadoop, H2O on Hadoop from R, Tableau, Power BI, QlikView, Minitab, SPSS Modeler, SAS EG/Forecasting, Base SAS Certified, XLSTAT

Computer Science/Database: Azure Databricks, AWS, Snowflake, Salesforce Core & Marketing Cloud, Google Cloud Platform (GCP), Hadoop, Hive, Impala, Oozie workflow, Autosys, Teradata, Netezza

Utilizing techniques such as Random Forest, Facebook Prophet, Gradient Boosted Models (GBM), Logistic regression, Multiple regression, Decision tree modeling (CHAID and CART), SVM, Neural Networks, Deep learning, CHAID, Principal Component Analysis, Factor Analysis, K-mean clustering, Discriminant analysis, Piece-wise Regression, ARIMA, SARIMA, Holt's methods, and Visualization

WORK EXPERIENCE:

DIRECTV **Dallas, TX** **Apr'2022 – Till Date**
Designation: Principal, Marketing Advanced Analytics
Type of Projects: ML Propensity Models, Propensity to Migrate, Propensity to Reconnects, Propensity to Contact, Propensity to Upgrade, Campaign Performance and Churn Benefits Analysis, Churn Attribution/Analytics, App Adoption Analysis, Customer Churn Insights, DirecTV Headlines Insights

- Developing multiple Machine Learning (ML) models (using Random Forest Regressor, Facebook Prophet, and Regression-based ARIMA) to predict future Voluntary Churn and Sales volumes and also identified the important Macro indices that contribute to the DTV & IPTV Vol churn rates, GA(Sales), and Commercial (Vol & Invol) churn rate
- The Forecast models made a huge impact on business planning and budgeting, predicting accuracy of 95% and above is a crucial component of managing business targets at the company level. The new forecast tool is helping to drive business planning and is part of Week & Monthly headlines reporting.
- Built end-to-end statistical ML predictive models to identify the DTV customers who are more likely to migrate to Stream/IPTV service and also reduce the churn rate from migrations. The high propensity-scored customers have a 55% higher migration rate than medium propensity and 174% **higher rate** than low propensity. Also, The treatment rates have increased by over 200 BPS post-launch for high-propensity, the high-propensity group has a higher treatment rate showing the offer acceptance for this group. The overall model predicted accuracy is **85.2% and 73%** of the migration from the top deciles)

- Analyzing DTV App adoptions and built Data Science models for existing/new users to estimate the monthly Incremental churn benefits from the DTV Everywhere App users.
- Preparing Weekly/Monthly Headline churn impacts and insights for the executives
- **Key priorities for 2023:** Designing, developing, and deploying advanced analytics solutions, including predictive and prescriptive outputs, analytical tools, and visualization capabilities, to enable business users to make appropriate data-driven decisions. Developing a deep understanding of internal and external data and leveraging it for the development of innovative solutions.
    - Collaborating with stakeholders and Advanced Analytics business partners to identify and define advanced analytics solutions for business needs to reach company-level goals.
    - Developing brand new **Customer Sentiment Analysis** using Advanced Data Science methodology to identify areas for improvement in our products and services to improve sales, reduce churn, and increase customer satisfaction
    - Defines actions to scale the impact of churn insights at DTV, including using innovative methodologies and translating analytic results into actions that change the way the business executes. Working with business and helping them to learn how the Data-Informed Decision-Making Process and Go-To-Market Strategies helps our company to reach its goals

Chamberlain Group **Oak Brook, IL** **Jul' 2019 – Apr'2022**
Designation: Senior Applied Data Scientist
Type of Projects: Marketing Analytics, Profile Analysis, Propensity Model to Purchase Products/Connect Devices, Sales Forecasting at the Product Category level, Price Optimization, Marketing Campaign Analysis, Customer Experience Analytics, Customer Survey Analysis, Customer Churn Predictive Analysis

- Built multiple propensity models using advanced machine learning algorithms and profile analysis using Internal myQ App and External Acxiom attributes to predict customers more likely to connect Amazon Key. Improved Key conversion rate **by 2.1 to 2.7X** using social media and email campaigns. Also, it reduced Customer Acquisition Costs by 50%
- Built campaign-level model to predict the customer-level adoption of using the myQ app. It helped to test with multiple **Campaigns:** Holiday Campaigns, Paid Social live for Delivery (Mar'21), Holdout sample Validation (Aril'21), and Prime Day. **+106%** higher conversion rate when compared to High vs. Low propensity groups, and targeting the right audience helps to increase the open and click rate from **17.2% to 34.8%**
- Used Advanced ML algorithms to build the propensity model to identify the customer who is more likely to buy the Smart Garage Camera (neural networks and deep learning). Increased overall model accuracy from **66% to 81%**
- Model testing and results:
    - **Campaigns tested:** Labor Day, Prime Day'21, 2021 Dec Holiday Campaigns
    - **Outcome: 1.** High & Medium groups purchased at 2.7x higher conversion rate than Low group**. 2.** In LM.com, High & Medium purchased 2.6x higher conversion rate**. 3.** Targeting High & Med propensity groups reduced Customer Acquisition Costs by over 40%

- Worked on building multiple propensity models using advanced machine learning algorithms to identify the customers who are more likely to purchase new products/connect devices and recommend the right products at the individual customer level (Created propensity scores segmentations and recommended to target High & Medium groups)
- Customized our marketing strategy based on customer attributes (Internal and External)
- Analyzing and building customer behavior Model
- Developed forecast models (using Facebook Prophet, ARIMA, etc.) to forecast Residential product sales, commercial products, and orders level to help better business planning and demands supply
- To Gain insight into user churn trends for the myQ users and leverage the data to develop marketing messaging that will help prevent myQ app churn in the future
- Created new data requirement intake documents based on business problems and worked with the Data Engineering team to identify the relevant data from multiple sources

Sears Holdings Corporation **Miami, FL** **Sep' 2017 – July'2019**
Designation: Senior Data Scientist
Type of Projects: 5321-Credit Card Spending Analysis, Customer Engagement Analysis, Forecasting by Sales

- Understanding business context and strategic plans and developing a data-driven business plan to support the attainment of business goals
- Developed propensity models using advanced machine learning algorithms to identify the 5321 members likelihood of spending in each category level (Gas, Grocery, and Dining)
- Used Google Cloud Platform to develop propensity scoring models to help identifying the right members at the right time and increased the credit card spend earn rate from 1.5% to 3.6% ($1.3 to $2.6 million) per month
- Developed a predictive model to identify the members who are more likely to stop using the SYW card, and also it helped to increase the retention rate by 11%
- Developed time series forecasting models (ARIMA, Facebook Prophet, etc.) & provided strategic analysis for the business demands and supply by store/product level

Wipro Technologies **Denver, CO** **Oct' 2014 – Sep'2017**
Client: DISH Network
Designation: Lead Data Scientist
Type of Projects: Customer Churn Model (both Dish/Sling TV), Propensity to Pay Collections, Issuing Smarter Call Tags, SHS propensity to Buy cross-sell Products & Product recommendations, Text Mining, SlingTV subscription level Projections, and Customer Segmentation

- Built predictive models from start-to-finish (i.e., extract data, manipulate data, Data Profiling, develop and validate model) and then deployed the model on real data and tracked model performance/model accuracy
- Scheduled scoring model using big data platforms like Hadoop with R-Streaming, R on H2O, Autosys & Oozie jobs
- Identify the most significant behavioral patterns that lead to customer churn and build an attrition model to understand the probability of a subscriber staying or attrite after subscribing to DISH/SlingTV viewership

- Helped my client (Dish Network) to save the cost of $2-2.5 Million annually:
    - Built and delivered the response models to predict the probabilities of a customer returning set-top boxes
- Helped my client to do collections in fewer than 20 days rather than 180 days:
    - Built Propensity to Pay Model for Billing and Credit teams towards STB collections. Enabled Agency prioritization by account categories (Easy, Medium, Hard), immediate additional collections of **$150K** per month using the identified hard to collect accounts in the primary tier, and reduced agency commission from 30% to 8%

Wipro Technologies **Bangalore, India** **Mar' 2008 – Oct'2014**
Client: Workforce Management, HR, Talent Transformation, and MQ
Designation: Data Scientist/Senior Consultant
Type of Projects: Demand Forecasting, Employee Attrition, Revenue Growth Forecast, Demand Cancellation propensity, Quality & Learning Analytics, and Reporting

- Developed time series forecasting model(ARIMA) & provided strategic analysis for the business demands and supply, in which the model predicted actual demand with 93% accuracy
- Created Exploratory Data Analysis to identify trends, seasonality, outliers, etc.
- Managed team processes and deliverables for Ramp-up and Ramp down demand forecasts
- Responsible for providing reports, analysis, and insightful recommendations to business leaders on key performance metrics about employee performance
- Built predictive models to identify the most significant behavioral patterns that lead to employee churn
- Created Propensity model to identify the most influential attributes contributing to the Indent/Demand Cancellation

Meritus Analytics **Bangalore, India** **Oct'2007 – Mar'2008**
Client: Unilever (UL), ATG-India (Consumer Product), Volvo (Car)-Japan
Designation: Statistical Analyst
Type of Projects: Market Mix Modeling, Marketing, and Advertising

- Responsible for creating Exploratory Data Analysis (EDA) to identify trends, seasonality, and outliers
- Modeling the influence of individual factors like carryover after air date (adstock), media lag effects
- Defined effectiveness (volume generated by each unit of effort), Return on investment, and optimal marketing spend to maximize sales and/or profit
- Identified the Marketing drivers such as Price, Promotions, Distribution, Amount spent on different forms of media (TV, Radio, Press, Outdoor, etc.) that influence in enhancing or declining sales or awareness of brand/category through Predictive Modeling and Forecasted future sales using SAS, E-view software
- To recommend the future spending levels on each Marketing input based on the objective of maximizing returns within the available marketing Budget

- Provided ROI for each advertising and promotional campaign, including halo effects on related brands

Dove Fine Chemicals (P) Ltd **Bangalore, India** **Jul'2005 – Sep'2007**
Designation: Asst. Manager - Sales
Type of Projects: Marketing Sales, Reporting, Chemicals Manufacturing & Marketing

- Managing and leading the marketing team.
- Coordinated with the sales team to analyze monthly, quarterly, and annual production & sales reports to Manager
- Managed day-to-day activities with the sales team
- Motivating employees to give their best to the organization
- Report to the general manager regarding all the developments & marketing activities

External Certifications & Training:

- Certified **SAS Base** Programming for SAS 9 with **86%** score from SAS Institute
- Multiple linear Regression(**MLR**), Logistic Regression(**LR**) and Survival Analysis(**SA**)– at **CMC(Christian Medical College), Vellore, India**
- **SAS 9.1.3** Software Training Program – at **CMC (Christian Medical College), India**
- **Completed certified courses Base SAS, R-Programming & Adv. Analytics from Analytics Training Institute (ATI), Bangalore, India**

Award:

DIRECTV:

1. **Q2 - 2022 DIRECTV Elite Best Performer Award** for implementing advanced modeling skills to help identify customers who are more likely to migrate Stream to Satellite and significantly reduced churn rate. Also, built V1 Macro Indices Vol churn model that is being leveraged to measure and attribute Macroeconomic impacts to Voluntary Churn Performance. The model was built at the right time to quantify the Macro Economic environment pressure on the business and was very well planned for future business pressure.

2. **Q1 – 2023 DIRECTV Best Performer Connection Award** for developing Prophet forecast model and framework for ongoing expectation setting of weekly/monthly/quarterly performance.

3. **Q2 – 2023 DIRECTV Best Performer Connection Award** for designing and measuring the Afiniti 50/50 call routing Impacts/Benefits. I was also instrumental in digging into the underlying data deltas that are impacting invoicing and tracking the benefits that Afiniti provides on customer churning.

4. **Q3 – 2023 DIRECTV Best Performer Connection Award** for measurement for two strategic initiatives – adopting DIRECTV Everywhere on various devices and assessing GEMINI acquisition benefits and a proactive campaign for high-risk NFLST subscribers and working cross-functionally to ensure data quality and generate findings.

5. **Q1 – 2024 DIRECTV Extraordinary Award** for developing and deployed several ML models for predicting the likelihood of customers reconnecting from Satellite service, another model to identify customers likely to migrate to streaming services. These models are used in various Win back and retention campaigns, with monthly updates and detailed reporting to optimize campaign effectiveness.

DISHNETWORK:

Q2 – 2016 Best Transformer award for contributing the "Best Insights" in the SlingTV churn "10 things" data exploration challenge.

WIPRO TECHNOLOGY:

2016 – Wipro Best Performer doing Above and beyond for technical excellence and hard work in the Data Science (Machine Learning) area and solving complex business problems in Dish network (Client).

LinkedIn Article Published: The Combination of Algorithms for Variable Reduction Using R

Link - https://www.linkedin.com/pulse/combination-algorithms-variable-reduction-using-r-velu-shanmugam/?trackingId=wnBXBNl1Q%2B%2B7ndHqNc0ftg%3D%3D

International Articles Publications:

1. **Velu Chinnasamy Shanmugam**., Swarnalakshmi R, Pradeepaveerakumari Kumarasamy, Vijayalakshmi C, "*Use of advanced Machine Learning Algorithms to identify and explore the development of Fetal Health based on Cardiotocograpghy Data*" Journal for Basic Sciences, 23(12), 91-103 (2023)

   Link: https://fzgxjckxxb.com/volume-23-issue-12-2023/

2. **Velu Chinnasamy Shanmugam**, Kannadasan Karuppaiah, Vinoth Raman Assessment of Common Risk Factors of Non-Communicable Diseases Using Semi Markov Model, International Journal of Medical Science Research and Practice Vol.10, Issue.3, pp.01-05, (2023) E-ISSN: 2349-3186 P-ISSN: 2349-3178

   Links:https://www.isroset.org/pdf_paper_view.php?paper_id=3274&1-ISROSET-IJMSRP-08872.pdf

3. **Velu Chinnasamy Shanmugam**., Swarnalakshmi R, Pradeepaveerakumari Kumarasamy, Vijayalakshmi C, "*An Exhaustive Empirical Statistical Analysis And Interpretation of Bitcoin Data"* Advances and Applications in Statistics, Pushpa Publishing House, Volume 91, Number 4, 2024, Pages 421-437, P-ISSN: 0972-3617
   Links:https://pphmjopenaccess.com/index.php/aas/article/view/1185

4. **Velu Chinnasamy Shanmugam**, Kannadasan Karuppaiah, Vinoth Raman, "*Understanding The Kaplan-Meier Estimate For Breast Cancer – A Retrospective Study*" Global Scientific and Academic Research Journal of Multidisciplinary Studies Vol – 2 Issue – 7 PP: - 09-13 (2023), ISSN: 2583-4088
   Link:https://gsarpublishers.com/wp-content/uploads/2023/07/GSARJMS692023-Gelary-script.pdf

5. Vijayalakshmi C **,** Subramani R, Pradeepaveerakumari Kumarasamy , **Velu Chinnasamy Shanmugam** *"An Extended Kalman Filter (EKF) Approach for Position Estimation of Autonomous Vehicles"* **Submitted for Publication**

6. **Velu Chinnasamy Shanmugam**, C.Vijayalakshmi, M.Mynarani, K.Pradeepa Veerakumari, *"A Study Untilizing Advanced Machine Learning Techniques to Analyze Gestational Diabetes Mellitus And Its Implementations"* **Submitted for Publication**
7. *"Emotion Extraction of Autism children through Art using Deep Learning Techniques "*– In-Progress
8. *"Advanced Machine Learning in Big Data for the Prediction of Customer Attrition in the Telecommunication Industry"* – ***Track name:*** *Artificial Intelligence, Data Science & Computing:* **In-Progress**

International Conference:

Conference-1: An Extended Kalman Filter (EKF) Approach for Position Estimation of Autonomous Vehicles. Science and Engineering Research Board (SERB), International Conference on Artificial Intelligence of Things for Sustainability (AIoT4S-2024), 20th – 21st January 2024

Conference-2: Ninth International Conference on "Statistics for Twenty-first Century-2023" (ICSTC-2023) organized by the International Statistics Fraternity(ISF), Department of Statistics and School of Physical and Mathematical Sciences, University of Kerala, Trivandrum during 15 - 18 December, 2023 and delivered an Invited talk on "Advanced Machine Learning in Big Data for the Prediction of Customer Attrition in the Telecommunication Industry".

Conference-3: International Conference on Recent Trends in Mathematics, Statistics, and Engineering organized by School of Technology Management and Engineering SVKM's NMIMS (Deemed-to-be University), Indore, Madhya Pradesh, India on December 22 - 23, 2023, Presented a paper titled "A Critical Analysis of Exploration and Classification of Fetal Health Development Based on Cardiotocography Data Using Machine Learning Techniques" with Paper ID 059 in the ICRTMSE 2023

Conference-4: International Conference on Recent Trends in Mathematics, Statistics, and Engineering organized by School of Technology Management and Engineering SVKM's NMIMS (Deemed-to-be University), Indore, Madhya Pradesh, India on December 22 - 23, 2023, Presented a paper titled " A Comprehensive Statistical Insight and Analysis of Bitcoin Data" with Paper ID 060 in the ICRTMSE 2023

Conference-5: Ninth International Conference on "Statistics for Twenty-first Century-2023" (ICSTC-2023) organized by the International Statistics Fraternity(ISF), Department of Statistics and School of Physical and Mathematical Sciences, University of Kerala, Trivandrum during 15 - 18 December, 2023 and delivered an Invited talk on "Advanced Machine Learning Techniques Take Sales Forecasts to the Next Level".

Reg.No.:422M8075P00016

ANNAMALAI UNIVERSITY

WITH COURAGE AND FAITH

FACULTY OF SCIENCE

The Senate of the ANNAMALAI UNIVERSITY hereby makes known that **VELU C S** has been admitted to the Degree of **MASTER OF PHILOSOPHY IN STATISTICS** he/she having been certified by duly appointed Examiners to be qualified to receive the same at the Examination held in **MARCH - 2010** and that he/she was placed in **SECOND** Class.

Given under the seal of the University

Annamalainagar
Dated : 06/10/2010

Deputy Controller of Examinations (Academic)

Registrar

Vice-Chancellor

BHARATHIAR UNIVERSITY, COIMBATORE.

PROVISIONAL CERTIFICATE

Register No. : 02STAB26 Folio No.: 559

This is to certify that VELU C S

has qualified for the Degree of MASTER OF SCIENCE

he/she having passed the final examination held in APRIL 2004 as follows :

*** M.SC.STATISTICS WITH COMP.APLN FIRST CLASS

CONTROLLER OF EXAMINATIONS COIMBATORE 641046 BHARATHIAR UNIVERSITY

Coimbatore 641 046
Date 10 NOV 2004

Controller of Examinations

Reg.No: 02STAB26

பாரதியார் பல்கலைக் கழகம்
Bharathiar University

அறிவியல் புலம்
FACULTY OF SCIENCE

பாரதியார் பல்கலைக் கழகம் ஏப்ரல் 2004ஆம் ஆண்டு நடத்திய புள்ளியியலுடன் கணிப்பான் செயல்முறையியல் தேர்வில் வேலு சி ச, முதல் வகுப்பில் தேர்ச்சி பெற்றுத் தகுதியடைந்திருப்பதாக, உரிய தேர்வாளர்கள் சான்றளித்ததை ஏற்று, அறிவியல் நிறைஞர் என்னும் பட்டத்தினை அவருக்குப் பல்கலைக் கழக இலச்சினையுடன், பாரதியார் பல்கலைக் கழக ஆட்சிக் குழு வழங்குகின்றது.

The Syndicate of the Bharathiar University hereby makes known that **VELU C S** *has been admitted to the Degree of* **MASTER OF SCIENCE,** *having been certified by duly appointed Examiners to be qualified to receive the same in* **STATISTICS WITH COMPUTER APPLICATIONS** *and was placed in the* **FIRST** *Class, at the Examination conducted in* **APRIL 2004** *by Bharathiar University.*

Given under the Seal of the University.

கோயம்புத்தூர்
Coimbatore

நாள்
Dated: 1st March 2005

தேர்வாணையர்
Controller of Examinations

பதிவாளர்(பொ)
Registrar i/c

துணைவேந்தர்
Vice-Chancellor

t5030641

ISSUED ON 29 SEP 2005

C № 064400

2001/ 95055

சென்னைப் பல்கலைக்கழகம்

UNIVERSITY OF MADRAS

CENTRE CODE	REG. NO. / ENRL. NO.
0425	2905229

FOLIO NUMBER	DATED
JVKS04312	22/07/2002

PROVISIONAL CERTIFICATE B. SC

This is to certify that VELU C S

has qualified for the degree of BACHELOR OF SCIENCE

he/she having passed the above Degree Examination held

in APRIL-2002 *as follows :*

LANGUAGE : TAMIL	SECOND CLASS
ENGLISH :	THIRD CLASS
CORE COURSE: COMPUTER SCIENCE	FIRST CLASS

CHEPAUK, CHENNAI - 600 005.

ASSISTANT REGISTRAR

2905229

University of Madras
சென்னைப் பல்கலைக்கழகம்

FACULTY OF SCIENCE
அறிவியல் புலம்

The Senate of the University of Madras *hereby makes known that* **VELU C S** *has been admitted to the*

DEGREE OF BACHELOR OF SCIENCE IN COMPUTER SCIENCE

he / she having been certified by duly appointed Examiners to be qualified to receive the same and was placed in the **FIRST CLASS** *at the Examination held in* **APRIL 2002**

சென்னைப் பல்கலைக்கழகப் பேரவை, 2002 *ஆம் ஆண்டு* **ஏப்ரல்** *மாதம் நடந்த* **கணினி அறிவியல்** *தேர்வில்* **வேலு சி ச** *என்பவர்* **முதல் வகுப்பில்** *தேர்ச்சி பெற்றார் என்று தக்க தேர்வாளர்கள் சான்றளித்தபடி,* **அறிவியல் இளையர்** *என்னும் பட்டத்தை அவருக்குப் பல்கலைக்கழக இலச்சினையுடன் வழங்குகிறது.*

Given under the seal of the University

Registrar
பதிவாளர்

Vice-Chancellor
துணைவேந்தர்

Dated :
நாள் : **12-09-2002**

Chepauk, Chennai 600 005, Tamilnadu, India
சேப்பாக்கம், சென்னை - 600 005, தமிழ்நாடு, இந்தியா

2K-2/ 020688

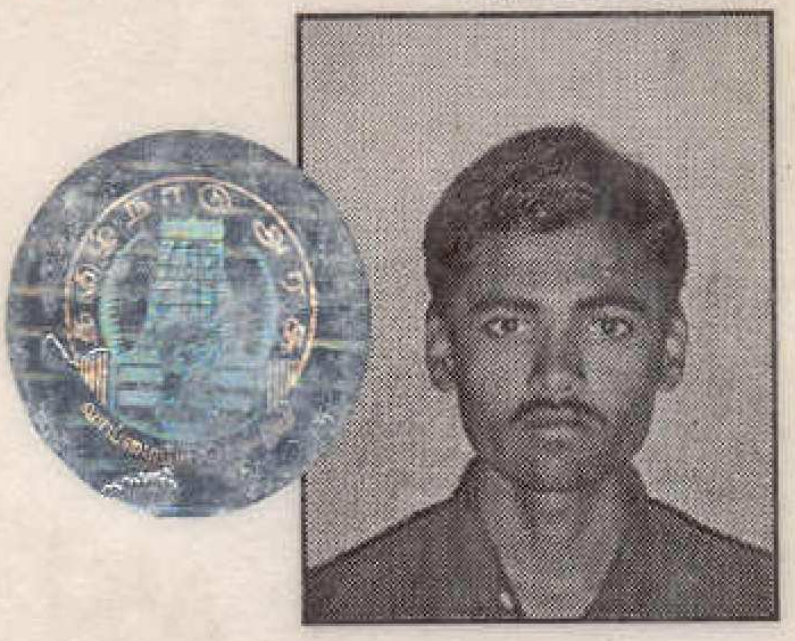
ELECTION COMMISSION OF INDIA

IDENTITY CARD

இந்தியத் தேர்தல் ஆணையம்

வாக்காளர் அடையாள அட்டை

HPH1338680



Elector's Name	**Velu**
வாக்காளர் பெயர்	வேலு
Father's Name	**Shanmugam**
தந்தை பெயர்	சண்முகம்
Sex / பாலினம்	**Male** ஆண்
Age as on 1.1.1999	
1.1.1999 அன்று வயது	22

Address : 1/29

Pilliyar Koil Street
Ramakrishna Rajipettai (P)
Vellathur
THIRUVALLUR - 631303

முகவரி: 1/29
பிள்ளையார் கோயில் தெரு
இராமகிருஷ்ண ராஜீபேட்டை (ஊ)
வெள்ளாத்தூர்
திருவள்ளூர் - 631303

Facsimile Signature of Electoral Registration Officer
வாக்காளர் பதிவு அதிகாரியின் கையொப்ப முத்திரை

For 031 - PALLIPATTU
Assembly Constituency

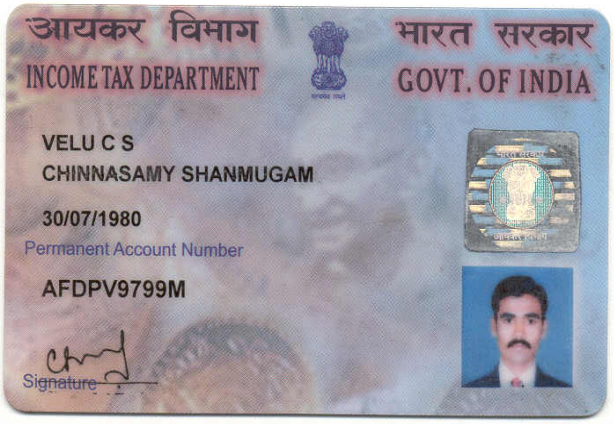
031 - பள்ளிப்பட்டு
சட்டமன்ற தொகுதி

Place TIRUTTANI
இடம் திருத்தணி

Date / நாள் 16/11/2000

This card may be used as an Identity Card
under different Government Schemes.

இந்த அட்டையை அரசின் பல்வேறு திட்டங்களின்
கீழ் அடையாள அட்டையாக பயன்படுத்தலாம். 74/ 1396


आयकर विभाग
INCOME TAX DEPARTMENT
भारत सरकार
GOVT. OF INDIA
VELU C S
CHINNASAMY SHANMUGAM
30/07/1980
Permanent Account Number
AFDPV9799M
Signature