



**Bangladesh University of Engineering and Technology**  
**Department of Electrical and Electronic Engineering**

## **EEE458 VLSI II Laboratory Project**

# **Implementation of Convolutional Encoder and Viterbi Decoder in Verilog**

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**Section : G1**

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# Implementation Of Convolutional Encoder And Viterbi

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## **Implementation Of Convolutional Encoder And Viterbi:**

Introduction to Convolutional Codes with Applications Ajay Dholakia,2012-12-06 Introduction to Convolutional Codes with Applications is an introduction to the basic concepts of convolutional codes their structure and classification various error correction and decoding techniques for convolutionally encoded data and some of the most common applications The definition and representations distance properties and important classes of convolutional codes are also discussed in detail The book provides the first comprehensive description of table driven correction and decoding of convolutionally encoded data Complete examples of Viterbi sequential and majority logic decoding technique are also included allowing a quick comparison among the different decoding approaches Introduction to Convolutional Codes with Applications summarizes the research of the last two decades on applications of convolutional codes in hybrid ARQ protocols A new classification allows a natural way of studying the underlying concepts of hybrid schemes and accommodates all of the new research A novel application of fast decodable invertible convolutional codes for lost packet recovery in high speed networks is described This opens the door for using convolutional coding for error recovery in high speed networks Practicing communications electronics and networking engineers who want to get a better grasp of the underlying concepts of convolutional coding and its applications will greatly benefit by the simple and concise style of explanation An up to date bibliography of over 300 papers is included Also suitable for use as a textbook or a reference text in an advanced course on coding theory with emphasis on convolutional codes

## **Implementation of a Forward Error Correction Technique Using Convolutional Encoding with Viterbi Decoding** Sachin Rawat,2004

Data Science and Big Data Analytics Durgesh Mishra,Xin She Yang,Aynur Unal,Dharm Singh Jat,2024-03-16 This book features high quality research papers presented at the Third International Conference on Data Science and Big Data Analytics IDBA 2023 organized by Sri Aurobindo Institute of Technology Indore India in association with ACM and IEEE Computer Society in hybrid mode during June 16 17 2023 This book discusses the topics such as data science artificial intelligence machine learning quantum computing big data and cloud security computation security big data security information security forecasting data analytics mathematics for data science graph theory and application in data science data visualization computer vision and analytics for social networks

Sustainable Communication Networks and Application P. Karuppusamy,Isidoros Perikos,Fuqian Shi,Tu N. Nguyen,2021-01-25 This book includes novel and state of the art research discussions that articulate and report all research aspects including theoretical and experimental prototypes and applications that incorporate sustainability into emerging applications In recent years sustainability and information and communication technologies ICT are highly intertwined where sustainability resources and its management has attracted various researchers stakeholders and industrialists The energy efficient communication technologies have revolutionized the various smart applications like smart cities healthcare entertainment and business The book discusses and articulates emerging challenges in significantly reducing the energy

consumption of communication systems and also explains development of a sustainable and energy efficient mobile and wireless communication network It includes best selected high quality conference papers in different fields such as internet of things cloud computing data mining artificial intelligence machine learning autonomous systems deep learning neural networks renewable energy sources sustainable wireless communication networks QoS network sustainability and many other related areas

*Soft Computing*, 2005

**Convolutional Coding** L. H. Charles Lee, Charles Lee, 1997 Table of Contents Preface Ch 1 Introduction to Coded Digital Communication Systems 1 Ch 2 Structures of Convolutional Codes 11 Ch 3 Suboptimal and Optimal Decoding of Convolutional Codes 57 Ch 4 Sequential Decoding of Convolutional Codes 89 Ch 5 Encoding and Decoding of Punctured Convolutional Codes 101 Ch 6 Majority Logic Decoding of Convolutional Codes 117 Ch 7 Combined Convolutional Coding and Modulation 149 Ch 8 Combined Coding Modulation and Equalization 209 Ch 9 Applications of Convolutional Codes 225 App A Connection Vectors of Convolutional Codes for Viterbi Decoding 245 App B Connection Vectors of Convolutional Codes for Sequential Decoding 249 App C Puncturing Matrix for Punctured and Rate Compatible Punctured Convolutional Codes 251 App D Generator Polynomials for Self Orthogonal Systematic Convolutional Codes 263 App E Generator Polynomial Matrix for Two Dimensional Linear Trellis Codes 265 App F Encoder Trellis Program 269 App G Viterbi Codec Programs 283 About the Author 307 Index 309

**Advances in Recent Trends in Communication and Networks**, 2010

*Communications*, 1987

Field Programmable Logic and Applications Peter Y.K. Cheung, Georg A. Constantinides, Jose T. de Sousa, 2003-10-02 This book contains the papers presented at the 13th International Workshop on Field Programmable Logic and Applications FPL held on September 1 3 2003 The conference was hosted by the Institute for Systems and Computer Engineering Research and Development of Lisbon INESC ID and the Department of Electrical and Computer Engineering of the IST Technical University of Lisbon Portugal The FPL series of conferences was founded in 1991 at Oxford University UK and has been held annually since in Oxford 3 times Vienna Prague Darmstadt London Tallinn Glasgow Villach Belfast and Montpellier It brings together academic researchers industrial experts users and newcomers in an informal welcoming atmosphere that encourages productive exchange of ideas and knowledge between delegates Exciting advances in field programmable logic show no sign of slowing down New grounds have been broken in architectures design techniques run time configuration and applications of field programmable devices in several different areas Many of these innovations are reported in this volume The size of FPL conferences has grown significantly over the years FPL in 2002 saw 214 papers submitted representing an increase of 83% when compared to the year before The interest and support for FPL in the programmable logic community continued this year with 216 papers submitted The technical program was assembled from 90 selected regular papers and 56 posters resulting in this volume of proceedings The program also included three invited plenary keynote presentations from LSI Logic Xilinx and Cadence and three industrial tutorials from Altera Mentor Graphics and Dafca

**Advanced Signal-processing Algorithms, Architectures, and Implementations**

,1992 **Electrical & Electronics Abstracts** ,1988 **Mobile Broadband** Mustafa Ergen,2009-04-05 This book addresses the emerging technology for Orthogonal Frequency Division Multiple Access OFDMA covering OFDMA physical layer as well as network technology The book also includes information on IEEE 802 16e and WiMAX networks and also offers a comparison with other OFDMA technologies OFDMA is the fastest growing area in the wireless marketplace and the backbone of systems used in WiMAX WiMAX is the technology that enables wireless users to communicate at any time from any location without having to find a WiFi hotspot

**5th International ITG Conference on Source and Channel Coding (SCC)** Johannes Huber (Prof. Dr.-Ing.),2004 Proceedings of the Conference on Digital Processing of Signals in Communications, Tuesday 6th to Friday 9th September 1977, University of Technology, Loughborough Institution of Electrical Engineers,1977 Advanced Intelligent Computing Theories and Applications. With Aspects of Theoretical and Methodological Issues De-Shuang Huang,Donald C. Wunsch,Daniel S. Levine,Kang-Hyun Jo,2008-08-28 The International Conference on Intelligent Computing ICIC was formed to provide an annual forum dedicated to the emerging and challenging topics in artificial intelligence machine learning bioinformatics and computational biology etc It aims to bring together researchers and practitioners from both academia and industry to share ideas problems and solutions related to the multifaceted aspects of intelligent computing ICIC 2008 held in Shanghai China September 15 18 2008 constituted the 4th International Conference on Intelligent Computing It built upon the success of ICIC 2007 ICIC 2006 and ICIC 2005 held in Qingdao Kunming and Hefei China 2007 2006 and 2005 respectively This year the conference concentrated mainly on the theories and methodologies as well as the emerging applications of intelligent computing Its aim was to unify the picture of contemporary intelligent computing techniques as an integral concept that highlights the trends in advanced computational intelligence and bridges theoretical research with applications Therefore the theme for this conference was Emerging Intelligent Computing Technology and Applications Papers focusing on this theme were solicited addressing theories methodologies and applications in science and technology

Proceedings of the IEEE 1984 National Aerospace and Electronics Conference, NAECON 1984 ,1984 **Mini- and Microcomputers and Their Applications** M. H. Hamza,1978 **Mimi 76** M. H. Hamza,1977 Proceedings of the IEEE 1999 Custom Integrated Circuits Conference ,1999

**Satellite Communications, Fifth Edition** Dennis Roddy,Jones Linwood,David G. Long,2024-02-02 An updated accessible guide to satellite communications fundamentals and new developments This thoroughly revised classic guide to satellite communications provides in depth textbook style coverage combined with an intuitive low math approach The book covers the latest breakthroughs in global wireless applications digital television and Internet access via satellite Filled with worked out examples and more than 200 illustrations the new edition offers a clear state of the art presentation of all satellite communications topics Written by two experienced electrical engineering professors Satellite Communications Fifth Edition fully aligns with the objectives of undergraduate and graduate courses in RF Microwave communications with

training for the needs of the aerospace industry and federal government agencies in mind Readers will explore orbits and launching methods satellite and ground SATCOM systems radio wave propagation antennas analog and digital signals link analysis and error control coding Expanded to emphasize calculations of signal to noise ratio SNR and the importance of SNR calculation losses Ancillary suite includes homework problems with solutions manual PowerPoint slides and a series of video lectures Written by three scholars each with over 40 years of experience

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In some sort of eaten by displays and the ceaseless chatter of instant interaction, the melodic elegance and emotional symphony developed by the published word frequently fade into the background, eclipsed by the constant sound and disruptions that permeate our lives. However, set within the pages of **Implementation Of Convolutional Encoder And Viterbi** a marvelous literary prize full of fresh thoughts, lies an immersive symphony waiting to be embraced. Constructed by a masterful musician of language, that captivating masterpiece conducts readers on an emotional journey, well unraveling the concealed melodies and profound impact resonating within each cautiously crafted phrase. Within the depths of this moving assessment, we can investigate the book is main harmonies, analyze their enthralling publishing design, and submit ourselves to the profound resonance that echoes in the depths of readers souls.

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